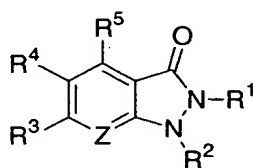


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### AMENDMENTS TO THE CLAIMS

Please replace all prior versions and listings of claims with the amended claims as follows:

1. (Currently amended) A compound of formula I:



or a pharmaceutically acceptable salt thereof, wherein:

$R^1$  and  $R^2$  are each independently hydrogen or a nitrogen protecting group;

one of  $R^3$  or  $R^4$  is -R and the other one of  $R^3$  or  $R^4$  is  $-Q^1-A-Q^2-Y$ ,

wherein  $Q^1$  is a valence bond,  $-NR^A-$ ,  $-C(R^A)_2-$ ,  $-S-$ ,  $-O-$ ,  $-SO_2-$  or  $-CO-$ , wherein each occurrence of  $R^A$  is independently hydrogen or optionally substituted  $C_{1-4}$ aliphatic, or two occurrences of  $R^A$  on the same carbon atom are taken together to form an optionally substituted 3-6-membered carbocyclic ring;

A is an optionally substituted group selected from a 5-7-membered monocyclic or 8-10-membered bicyclic aryl, heteroaryl, heterocyclic or carbocyclic ring;

$Q^2$  is  $NR^C$ , S, O, or  $C(R^C)_2$ , wherein each occurrence of  $R^C$  is independently hydrogen or optionally substituted  $C_{1-4}$ aliphatic;

Y is an optionally substituted group selected from a 5-7-membered monocyclic or 8-10-membered bicyclic aryl, heteroaryl, heterocyclic or carbocyclic ring;

$R^5$  is -R;

Z is  $CR^6$ , wherein  $R^6$  is -R; and

each occurrence of -R is independently hydrogen,  $Q_{(n)}$ halogen,  $Q_{(n)}$ CN,  $Q_{(n)}$ NO<sub>2</sub>, or

$Q_{(n)}R^7$ , wherein n is zero or one, Q is an optionally substituted  $C_{1-4}$  alkylidene chain

wherein one or more methylene units of Q is optionally replaced by  $-O-$ ,  $-S-$ ,  $-NR^7-$ ,  $-NR^7CO-$ ,  $-NR^7CONR^7-$ ,  $-NR^7CO_2-$ ,  $-CO-$ ,  $-CO_2-$ ,  $-CONR^7-$ ,  $-OC(O)NR^7-$ ,  $-SO_2-$ , -

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$\text{SO}_2\text{NR}^7$ -,  $-\text{NR}^7\text{SO}_2$ -,  $-\text{NR}^7\text{SO}_2\text{NR}^7$ -,  $-\text{C}(\text{O})\text{C}(\text{O})$ -, or  $-\text{C}(\text{O})\text{C}(\text{R}^7)_2\text{C}(\text{O})$ -, and each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8-membered heterocyclic or 5-8-membered heteroaryl ring;

wherein one or more optional substituents on the unsaturated carbon atom of an aryl or heteroaryl group are independently selected from halogen;  $-\text{R}^\circ$ ;  $-\text{OR}^\circ$ ;  $-\text{SR}^\circ$ ; 1,2-methylenedioxy; 1,2-ethylenedioxy; phenyl (Ph) optionally substituted with  $\text{R}^\circ$ ;  $-\text{O}(\text{Ph})$  optionally substituted with  $\text{R}^\circ$ ;  $-(\text{CH}_2)_{1-2}(\text{Ph})$ , optionally substituted with  $\text{R}^\circ$ ;  $-\text{CH}=\text{CH}(\text{Ph})$ , optionally substituted with  $\text{R}^\circ$ ;  $-\text{NO}_2$ ;  $-\text{CN}$ ;  $-\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{C}(\text{S})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{C}(\text{S})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{CO}_2\text{R}^\circ$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{CO}_2\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{CH}_2\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{CO}_2\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{S})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{C}(\text{S})\text{N}(\text{R}^\circ)_2$ ;  $-\text{OC}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{OC}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{N}(\text{OR}^\circ)\text{R}^\circ$ ;  $-\text{C}(\text{NOR}^\circ)\text{R}^\circ$ ;  $-\text{S}(\text{O})_2\text{R}^\circ$ ;  $-\text{S}(\text{O})_3\text{R}^\circ$ ;  $-\text{SO}_2\text{N}(\text{R}^\circ)_2$ ;  $-\text{S}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{SO}_2\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{SO}_2\text{R}^\circ$ ;  $-\text{N}(\text{OR}^\circ)\text{R}^\circ$ ;  $-\text{C}(=\text{NH})-\text{N}(\text{R}^\circ)_2$ ; or  $-(\text{CH}_2)_{0-2}\text{NHC}(\text{O})\text{R}^\circ$ , wherein each independent occurrence of  $\text{R}^\circ$  is selected from hydrogen, optionally substituted  $\text{C}_{1-6}$  aliphatic, an unsubstituted 5-6 membered heteroaryl or heterocyclic ring, phenyl,  $-\text{O}(\text{Ph})$ , or  $-\text{CH}_2(\text{Ph})$ , or, two independent occurrences of  $\text{R}^\circ$ , on the same substituent or different substituents, taken together with the atom(s) to which each  $\text{R}^\circ$  group is bound, optionally form a 5-8-membered heterocyclyl, aryl, or heteroaryl ring or a 3-8-membered cycloalkyl ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein one or more optional substituents on the aliphatic group of  $\text{R}^\circ$  are selected from  $\text{NH}_2$ ,  $\text{NH}(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{N}(\text{C}_{1-4}\text{aliphatic})_2$ , halogen,  $\text{C}_{1-4}\text{aliphatic}$ ,  $\text{OH}$ ,  $\text{O}(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{NO}_2$ ,  $\text{CN}$ ,  $\text{CO}_2\text{H}$ ,  $\text{CO}_2(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{O}(\text{haloC}_{1-4}\text{aliphatic})$ , or  $\text{haloC}_{1-4}\text{aliphatic}$ , wherein each of the foregoing  $\text{C}_{1-4}\text{aliphatic}$  groups of  $\text{R}^\circ$  is unsubstituted;

wherein one or more optional substituents on an aliphatic or heteroaliphatic group, or on a non-aromatic heterocyclic ring are independently selected from halogen; -

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R<sup>o</sup>; -OR<sup>o</sup>; -SR<sup>o</sup>; 1,2-methylenedioxy; 1,2-ethylenedioxy; phenyl (Ph) optionally substituted with R<sup>o</sup>; -O(Ph) optionally substituted with R<sup>o</sup>; -CH=CH(Ph), optionally substituted with R<sup>o</sup>; -NO<sub>2</sub>; -CN; -N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>C(O)R<sup>o</sup>; -NR<sup>o</sup>C(S)R<sup>o</sup>; -NR<sup>o</sup>C(O)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>C(S)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>CO<sub>2</sub>R<sup>o</sup>; -NR<sup>o</sup>NR<sup>o</sup>C(O)R<sup>o</sup>; -NR<sup>o</sup>NR<sup>o</sup>C(O)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>NR<sup>o</sup>CO<sub>2</sub>R<sup>o</sup>; -C(O)C(O)R<sup>o</sup>; -C(O)CH<sub>2</sub>C(O)R<sup>o</sup>; -CO<sub>2</sub>R<sup>o</sup>; -C(O)R<sup>o</sup>; -C(S)R<sup>o</sup>; -C(O)N(R<sup>o</sup>)<sub>2</sub>; -C(S)N(R<sup>o</sup>)<sub>2</sub>; -OC(O)N(R<sup>o</sup>)<sub>2</sub>; -OC(O)R<sup>o</sup>; -C(O)N(OR<sup>o</sup>) R<sup>o</sup>; -C(NOR<sup>o</sup>) R<sup>o</sup>; -S(O)<sub>2</sub>R<sup>o</sup>; -S(O)<sub>3</sub>R<sup>o</sup>; -SO<sub>2</sub>N(R<sup>o</sup>)<sub>2</sub>; -S(O)R<sup>o</sup>; -NR<sup>o</sup>SO<sub>2</sub>N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>SO<sub>2</sub>R<sup>o</sup>; -N(OR<sup>o</sup>)R<sup>o</sup>; -C(=NH)-N(R<sup>o</sup>)<sub>2</sub>; or -(CH<sub>2</sub>)<sub>0-2</sub>NHC(O)R<sup>o</sup>, =O, =S, =NNHR<sup>\*</sup>, =NN(R<sup>\*</sup>)<sub>2</sub>, =NNHC(O)R<sup>\*</sup>, =NNHCO<sub>2</sub>(alkyl), =NNHSO<sub>2</sub>(alkyl), or =NR<sup>\*</sup>, where each R<sup>\*</sup> is independently selected from hydrogen or an optionally substituted C<sub>1-6</sub> aliphatic, wherein one or more optional substituents on the aliphatic group of R<sup>\*</sup> are selected from NH<sub>2</sub>, NH(C<sub>1-4</sub> aliphatic), N(C<sub>1-4</sub> aliphatic)<sub>2</sub>, halogen, C<sub>1-4</sub> aliphatic, OH, O(C<sub>1-4</sub> aliphatic), NO<sub>2</sub>, CN, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> aliphatic), O(halo C<sub>1-4</sub> aliphatic), or halo(C<sub>1-4</sub> aliphatic), wherein each of the foregoing C<sub>1-4</sub> aliphatic groups of R<sup>\*</sup> is unsubstituted;

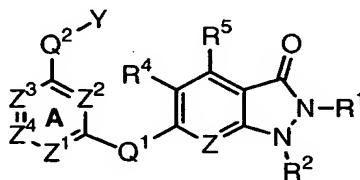
wherein one or more optional substituents on a nitrogen of a non-aromatic heterocyclic ring are independently selected from -R<sup>+</sup>, -N(R<sup>+</sup>)<sub>2</sub>, -C(O)R<sup>+</sup>, -CO<sub>2</sub>R<sup>+</sup>, -C(O)C(O)R<sup>+</sup>, -C(O)CH<sub>2</sub>C(O)R<sup>+</sup>, -SO<sub>2</sub>R<sup>+</sup>, -SO<sub>2</sub>N(R<sup>+</sup>)<sub>2</sub>, -C(=S)N(R<sup>+</sup>)<sub>2</sub>, -C(=NH)-N(R<sup>+</sup>)<sub>2</sub>, or -NR<sup>+</sup>SO<sub>2</sub>R<sup>+</sup>; wherein R<sup>+</sup> is hydrogen, an optionally substituted C<sub>1-6</sub> aliphatic, optionally substituted phenyl, optionally substituted -O(Ph), optionally substituted -CH<sub>2</sub>(Ph), optionally substituted -(CH<sub>2</sub>)<sub>1-2</sub>(Ph); optionally substituted -CH=CH(Ph); or an unsubstituted 5-6 membered heteroaryl or heterocyclic ring having one to four heteroatoms independently selected from oxygen, nitrogen, or sulfur, or, two independent occurrences of R<sup>+</sup>, on the same substituent or different substituents, taken together with the atom(s) to which each R<sup>+</sup> group is bound, optionally form a 5-8-membered heterocyclyl, aryl, or heteroaryl ring or a 3-8-membered cycloalkyl ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein one or more optional substituents on the aliphatic group or the phenyl ring of R<sup>+</sup> are selected from NH<sub>2</sub>, NH(C<sub>1-4</sub> aliphatic), N(C<sub>1-4</sub> aliphatic)<sub>2</sub>, halogen, C<sub>1-4</sub> aliphatic, OH, O(C<sub>1-4</sub>

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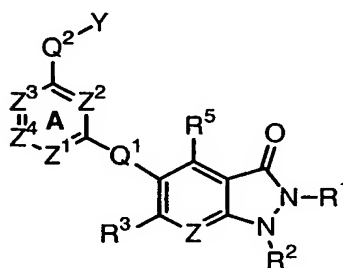
aliphatic), NO<sub>2</sub>, CN, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> aliphatic), O(halo C<sub>1-4</sub> aliphatic), or halo(C<sub>1-4</sub> aliphatic), wherein each of the foregoing C<sub>1-4</sub>aliphatic groups of R<sup>+</sup> is unsubstituted.

2-3. (Canceled)

4. (Original) The compound of claim 1, wherein either of R<sup>3</sup> or R<sup>4</sup> is -Q<sup>1</sup>-A-Q<sup>2</sup>-Y, wherein A is a substituted or unsubstituted aryl or heteroaryl moiety and compounds have the general formula **IIa** or **IIb**:



**IIa**



**IIb**

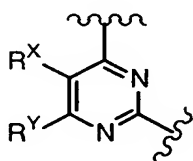
wherein Z<sup>1</sup> is N or CR<sup>V</sup>, Z<sup>2</sup> is N or CR<sup>W</sup>, Z<sup>3</sup> is N or CR<sup>X</sup> and Z<sup>4</sup> is N or CR<sup>Y</sup>, wherein R<sup>V</sup>, R<sup>W</sup>, R<sup>X</sup> and R<sup>Y</sup> are each independently R<sup>8</sup>, or R<sup>X</sup> and R<sup>Y</sup>, or R<sup>V</sup> and R<sup>Y</sup> are taken together with their intervening atoms to form a fused, unsaturated or partially unsaturated, 5-8 membered ring having 0-3 ring heteroatoms selected from oxygen, sulfur, or nitrogen, wherein any substitutable carbon on said fused ring formed by R<sup>X</sup> and R<sup>Y</sup> or by R<sup>V</sup> and R<sup>Y</sup> is substituted by oxo or R<sup>8</sup>, and any substitutable nitrogen on said ring formed by R<sup>X</sup> and R<sup>Y</sup> or by R<sup>V</sup> and R<sup>Y</sup> is substituted by R<sup>9</sup>;

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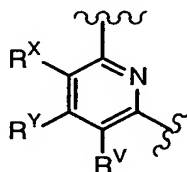
wherein each occurrence of  $R^8$  is independently  $-R$ ; and

each occurrence of  $R^9$  is independently hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted 5-8 membered heterocyclic or heteroaryl ring.

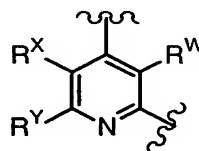
5. (Original) The compound of claim 4, wherein A represents one of the following moieties:



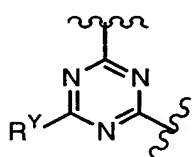
i



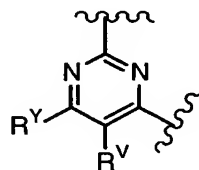
ii



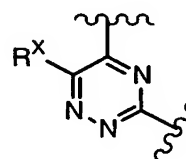
iii



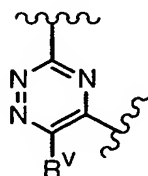
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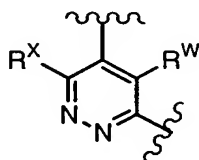
v



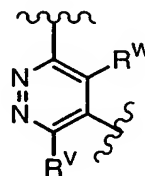
vi



vii

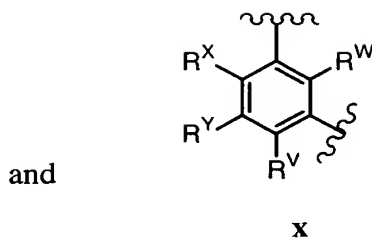


viii

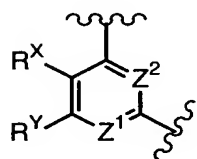


ix

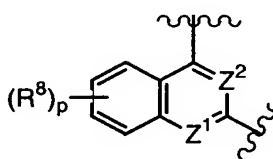
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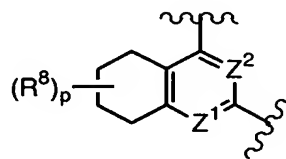
6. (Original) The compound of claim 5, wherein ring A is one of formulas **i**, **ii**, **iii** or **x**.
7. (Currently amended) The compound of claim 4, wherein Ring A is one of groups **II-A** through **II-DD**, wherein  $Z^1$  is nitrogen or  $CR^V$ ,  $Z^2$  is nitrogen or  $CR^W$ , and p is 0-4:



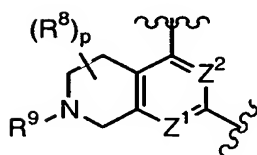
**II-A**



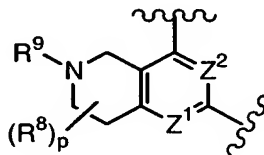
**II-B**



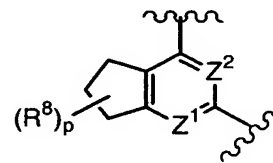
**II-C**



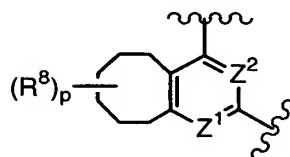
**II-D**



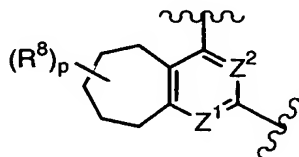
**II-E**



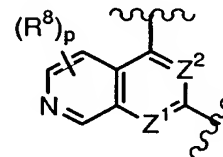
**II-F**



**II-G**

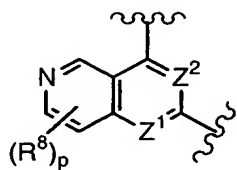


**II-H**

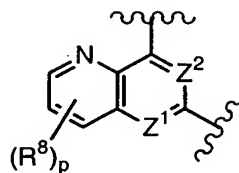


**II-I**

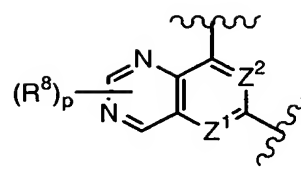
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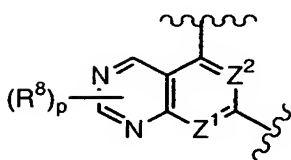
II-J



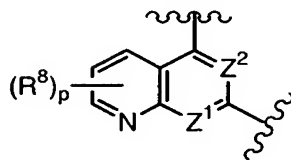
II-K



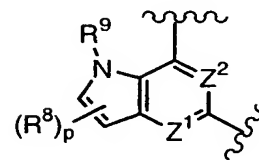
II-L



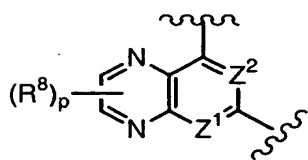
II-M



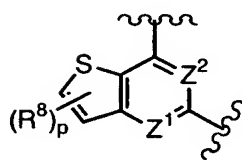
II-N



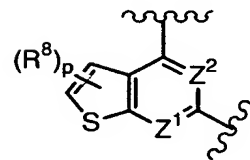
II-O



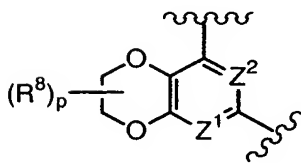
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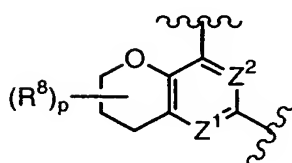
II-Q



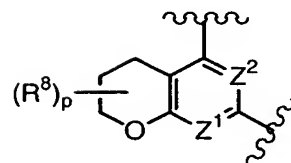
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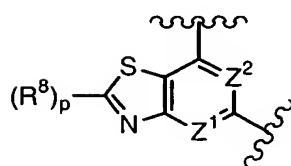
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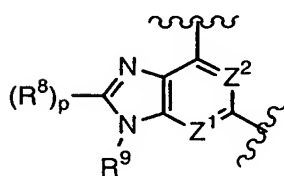
II-T



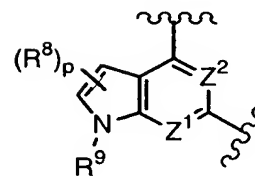
II-U



II-V

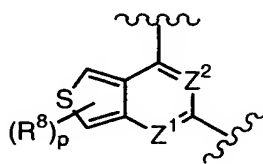


II-W

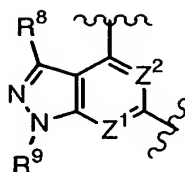


II-X

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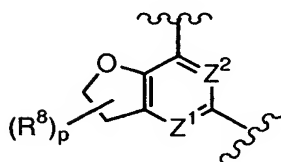
**II-Y**



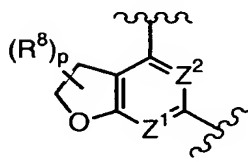
**II-Z**



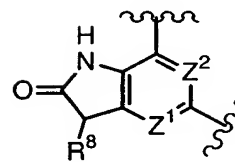
**II-AA**



**II-BB**



**II-BB II-CC**



**II-CC II-DD.**

8. (Original) The compound of claim 7, wherein ring A is one of **II-A, II-B, II-C, II-D, II-E, II-F, II-H, II-I, II-J, II-K, II-L, II-N, II-O, or II-DD.**
9. (Original) The compound of claim 7, wherein ring A is one of **II-A, II-B, II-C, II-D, II-E, II-H, or II-K.**
10. (Original) The compound of claim 7, wherein ring A is one of **II-A or II-B.**
11. (Original) The compound of claim 7, wherein  $Z^1$  is  $CR^V$  and  $Z^2$  is  $CR^W$ .
12. (Original) The compound of claim 7, wherein  $Z^1$  is N and  $Z^2$  is N.
13. (Original) The compound of claim 7, wherein  $Z^1$  is N and  $Z^2$  is  $CR^W$ .
14. (Original) The compound of claim 7, wherein  $Z^1$  is  $CR^V$  and  $Z^2$  is N.
15. (Currently amended) The compound of claim 4, wherein A is a monocyclic ring



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system and  $R^X$  groups, when present, ~~include~~ are selected from hydrogen, alkyl- or dialkylamino, acetamido, or a  $C_{1-4}$  aliphatic group ~~such as methyl, ethyl, cyclopropyl, or isopropyl~~;  $R^Y$  groups, when present, ~~include~~ are selected from hydrogen, an optionally substituted group selected from  $C_{1-6}$  aliphatic,  $C_{1-6}$  heteroaliphatic, aryl, or heteroaryl,  $-Q_{(n)}N(R^7)_2$ ,  $-Q_{(n)}OR^7$ ,  $-Q_{(n)}SR^7$ ,  $-Q_{(n)}(C=O)O(R^7)$ ,  $-Q_{(n)}C(O)N(R^7)_2$ ,  $-Q_{(n)}NHC(O)R^7$ ,  $-Q_{(n)}NHSO_2R^7$ , or  $-Q_{(n)}SO_2N(R^7)_2$ , wherein  $n$  is 0 or 1, and wherein  $Q$  is preferably  $-(C(R''))_2-$ , wherein  $R''$  is hydrogen or  $C_{1-3}$ alkyl, and wherein each occurrence of  $R^7$  is independently hydrogen, optionally substituted aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

16. (Currently amended) The compound of claim 15, wherein  $R^Y$  is one of the following groups: optionally substituted 5-6 membered heteroaryl or heterocyclyl rings, ~~such as 2-pyridyl, 4-pyridyl, pyrrolidinyl, piperidinyl, morpholinyl, or piperazinyl~~; optionally substituted aryl or cycloalkyl rings ~~such as phenyl, halogen-substituted phenyl, alkoxy-substituted phenyl, trifluoromethyl-substituted phenyl, nitro-substituted phenyl, methyl-substituted phenyl~~; optionally substituted  $C_{1-6}$  aliphatic, ~~such as methyl, ethyl, cyclopropyl, cyclopentyl, cyclohexyl, amino-substituted cycloalkyl, acetamido-substituted cycloalkyl, isopropyl, or t-butyl~~; alkoxyalkylamino ~~such as methoxyethylamine~~; alkoxyalkyl ~~such as methoxymethyl or methoxyethyl~~; aminoalkyl ~~such as aminoethyl, dimethylaminoethyl~~; alkyl- or dialkylamino ~~such as ethylamine or dimethylamine~~; alkyl- or dialkylaminoalkoxy ~~such as dimethylaminopropoxy~~; alkyl- or dialkylaminoalkoxyalkyl ~~such as dimethylaminoethoxymethyl~~; or acetamido.

17. (Original) The compound of claim 4, wherein A is a bicyclic ring system and the bicyclic ring system A may be substituted by one or more occurrences of oxo,  $R^8$  or  $R^9$ , wherein  $R^8$  is  $-R^7$ , halo,  $-O(CH_2)_{2-4}N(R^7)_2$ ,  $-O(CH_2)_{2-4}R^7$ ,  $-OR^7$ ,  $-N(R^7)-(CH_2)_{2-4}N(R^7)_2$ ,  $-N(R^7)-(CH_2)_{2-4}R^7$ ,  $-C(=O)R^7$ ,  $-CO_2R^7$ ,  $-COCOR^7$ ,  $-NO_2$ ,  $-CN$ ,  $-S(O)R^7$ ,

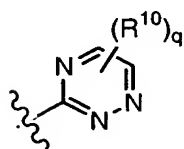
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$-\text{SO}_2\text{R}^7$ ,  $-\text{SR}^7$ ,  $-\text{N}(\text{R}^7)_2$ ,  $-\text{CON}(\text{R}^7)_2$ ,  $-\text{SO}_2\text{N}(\text{R}^7)_2$ ,  $-\text{OC}(=\text{O})\text{R}^7$ ,  $-\text{N}(\text{R}^7)\text{COR}^7$ ,  
 $-\text{N}(\text{R}^7)\text{CO}_2(\text{optionally substituted C}_{1-6} \text{ aliphatic})$ ,  $-\text{N}(\text{R}^7)\text{N}(\text{R}^7)_2$ ,  $-\text{C}=\text{NN}(\text{R}^7)_2$ ,  $-\text{C}=\text{N}-\text{OR}$ ,  
 $-\text{NHOR}^7$ ,  $-\text{N}(\text{R}^7)\text{CON}(\text{R}^7)_2$ ,  $-\text{N}(\text{R}^7)\text{SO}_2\text{N}(\text{R}^7)_2$ ,  $-\text{N}(\text{R}^7)\text{SO}_2\text{R}^7$ , or  $-\text{OC}(=\text{O})\text{N}(\text{R}^7)_2$ ,  
wherein each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted  
group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  
 $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an  
optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered  
heteroaryl ring.

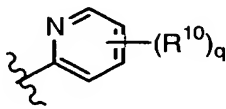
18. (Original) The compound of claim 17 wherein each occurrence of  $\text{R}^8$  is  
independently  $-\text{halo}$ ,  $-\text{R}^7$ ,  $-\text{OR}^7$ ,  $-\text{COR}^7$ ,  $-\text{CO}_2\text{R}^7$ ,  $-\text{CON}(\text{R}^7)_2$ ,  $-\text{O}(\text{C}=\text{O})\text{N}(\text{R}^7)_2$ ,  $-\text{CN}$ ,  
 $-\text{O}(\text{CH}_2)_{2-4}\text{N}(\text{R}^7)_2$ ,  $-\text{O}(\text{CH}_2)_{2-4}\text{R}^7$ ,  $-\text{NO}_2$ ,  $-\text{N}(\text{R}^7)_2$ ,  $-\text{NR}^7\text{COR}^7$ ,  $-\text{NR}^7\text{SO}_2\text{R}^7$ ,  $-\text{SO}_2\text{N}(\text{R}^7)_2$   
wherein each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted  
group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  
 $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an  
optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered  
heteroaryl ring.

19. (Original) The compound of claim 4, wherein Y is an optionally substituted  
heteroaryl moiety.

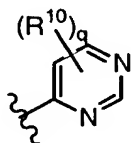
20. (Currently amended) The compound of claim 4, wherein Y is selected from one  
of the following heteroaryl moieties a-y:



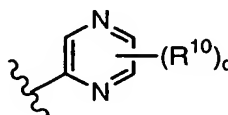
a



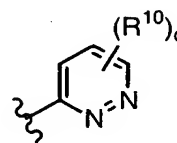
b



c

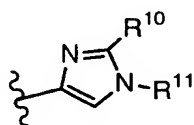


d

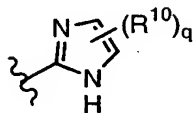


e

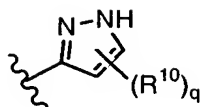
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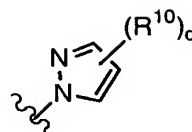
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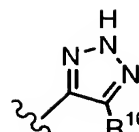
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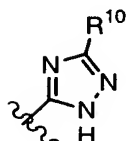
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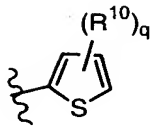
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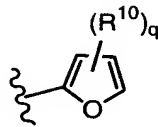
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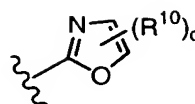
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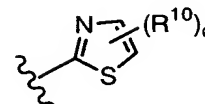
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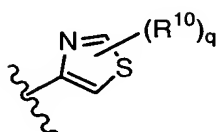
m



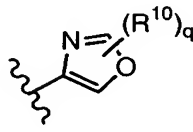
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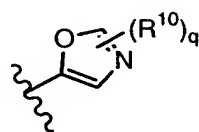
o



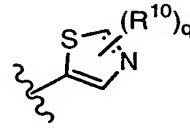
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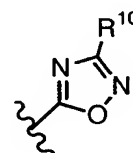
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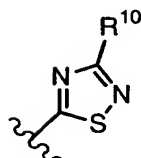
r



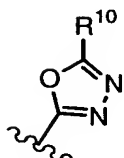
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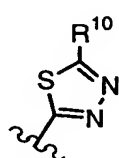
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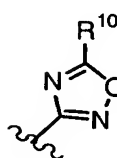
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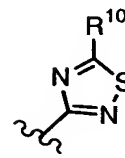
v



w



x



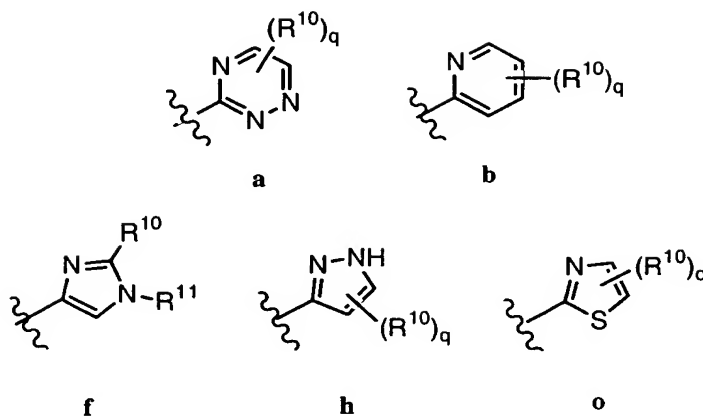
y

wherein q is 0-4, R<sup>10</sup> is -R, ~~wherein R is defined generally above and in classes and subclasses herein~~, and wherein each occurrence of R<sup>11</sup> is independently hydrogen, -R', -COR', -CO<sub>2</sub>(R'), -CON(R')<sub>2</sub>, or -SO<sub>2</sub>R', wherein each occurrence of R' is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of R' on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

21. (Currently amended) The compound of claim 20, wherein Y is one of the

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following heteroaryl moieties:



wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

22. (Original) The compound of claim 20, wherein  $Y$  is a pyrazole moiety, **h**.

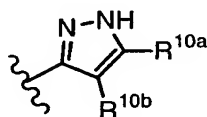
23. (Original) The compound of claim 20, wherein each  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, or (N-heterocycle)carbonyl.

24. (Original) The compound of claim 20, wherein each occurrence of  $R^{10}$  is independently methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,

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CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),  
CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-  
methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>,  
CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, or  
CO(piperidin-1-yl).

25. (Original) The compound of claim 20, wherein, Y is a pyrazole moiety, **h'**,  
wherein the pyrazole is substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup>)

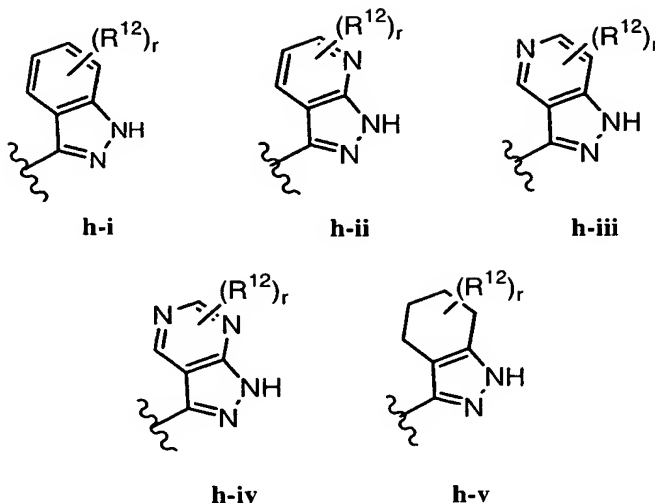


**h'**

wherein R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl; and R<sup>10b</sup> is hydrogen.

26. (Currently amended) The compound of claim ~~[[20]]~~ 25, wherein ~~two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup> as depicted in formula **h'**)~~ taken together may represent a substituted or unsubstituted cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl moiety and comprises one of the following groups:

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wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), wherein the  $(C_{1-3}$  alkyl) is most preferably methyl, wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

27. (Original) The compound of claim 4, wherein when  $R^3$  is  $-Q^1-A-Q^2-Y$ ,  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di-alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl.

28. (Original) The compound of claim 27, wherein  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

29. (Currently amended) The compound of claim 4, wherein when  $R^4$  is  $-Q^1-A-Q^2-Y$ ,  $R^3$  is preferably hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di-alkylamino, mono- or di-alkylaminoalkyl, or optionally

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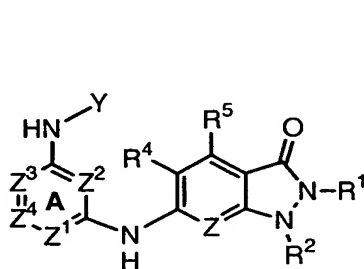
substituted phenyl.

30. (Currently amended) The compound of claim [[27]] 29, wherein  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

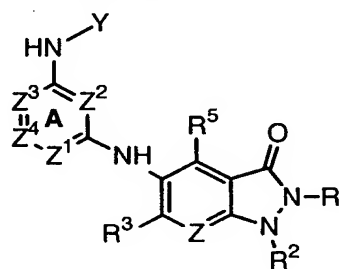
31. (Original) The compound of claim 4, wherein  $R^5$  is hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ .

32. (Original) The compound of claim 31 wherein  $R^5$  is  $Cl$ ,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

33. (Original) The compound of claim 4, wherein  $Q^1$  is  $NH$  and  $Q^2$  is  $NH$ , and compounds are defined by the general formula **IIa(i)** or **IIb(i)**:

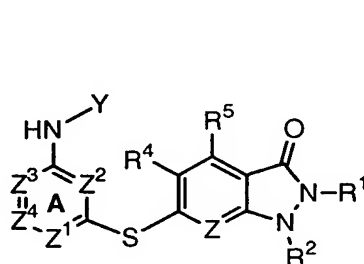


**IIa(i)**

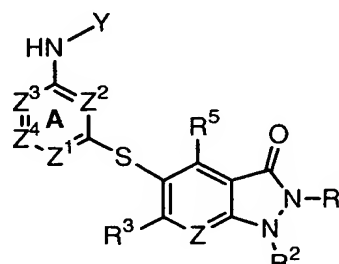


**IIb(i)**

34. (Original) The compound of claim 4, wherein  $Q^1$  is  $S$  and  $Q^2$  is  $NH$ , and compounds are defined by the general formula **IIa(ii)** or **IIb(ii)**:



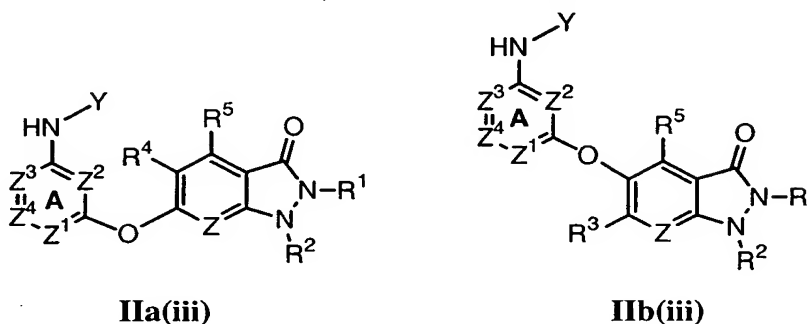
**IIa(ii)**



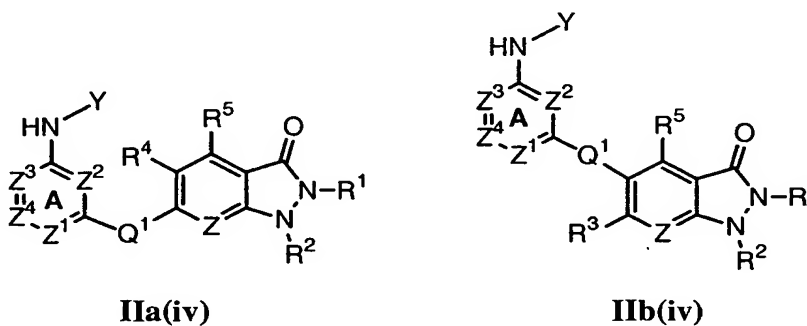
**IIb(ii)**

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35. (Original) The compound of claim 4, wherein  $Q^1$  is O and  $Q^2$  is NH, and compounds are defined by the general formula **IIa(iii)** or **IIb(iii)**:



36. (Previously amended) The compound of claim 4, wherein  $Q^2$  is NH, and compounds are defined by the general formula **IIa(iv)** or **IIb(iv)**:

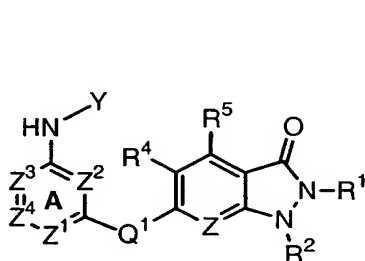


wherein  $Q^1$  is  $-C(R^A)_2$ .

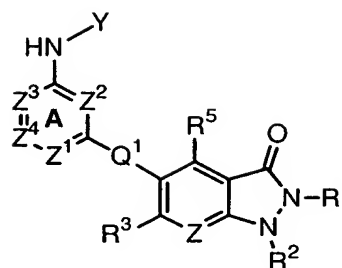
37. (Original) The compound of claim 4, wherein  $Q^2$  is NH and Y is an optionally substituted heteroaryl moiety, and compounds are defined by the general formula **IIa(v)** or **IIb(v)**:



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**IIa(v)**



**IIb(v)**

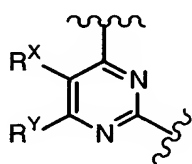
wherein  $Q^1$  is a direct bond.

38. (Currently amended) The compound of any one of claims 33, 34, 35, 36 or 37, wherein:

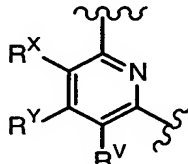
(i)  $R^1$ ,  $R^2$ ,  $R^4$  and  $R^5$  are each hydrogen and wherein  $Z$  is  $\underline{CR^6}$   $[[CHR^6]]$  and  $R^6$  is hydrogen; or  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^5$  are each hydrogen and wherein  $Z$  is  $\underline{CR^6}$   $[[CHR^6]]$  and  $R^6$  is hydrogen;

(ii) ring A is defined according to one of the following groups:

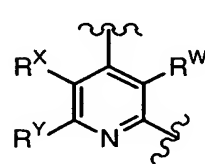
[[a.]] (a) ring A is one of formulas



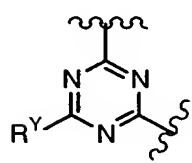
**i**



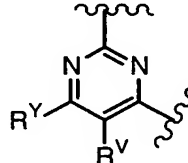
**ii**



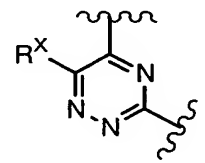
**iii**



**iv**

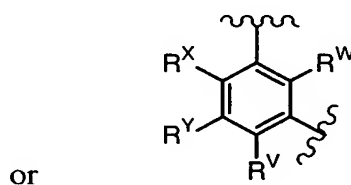
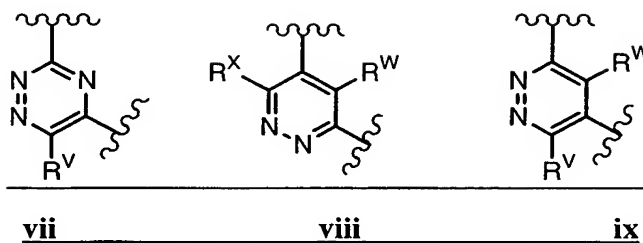


**v**



**vi**

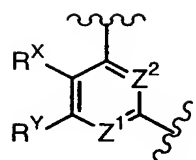
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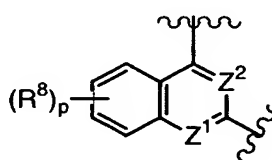
**x;**

**i, ii, iii, iv, v, vi, vii, viii, ix, or x;**

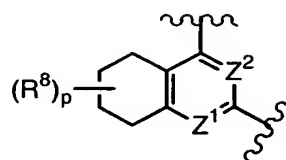
[[b.]] (b) ring A is one of formulas



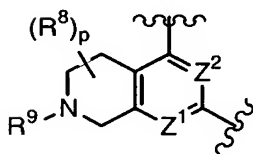
**II-A**



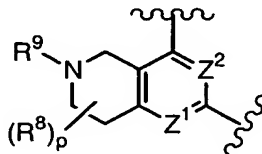
**II-B**



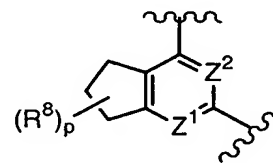
**II-C**



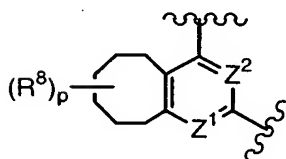
**II-D**



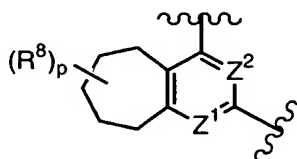
**II-E**



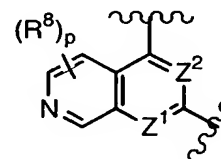
**II-F**



**II-G**

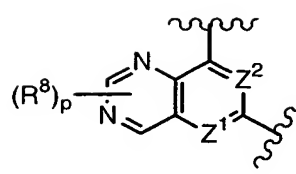
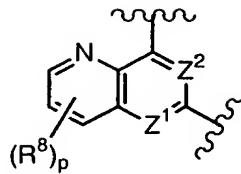
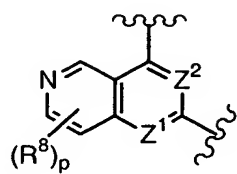


**II-H**



**II-I**

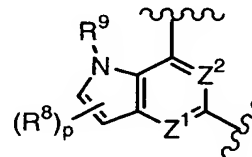
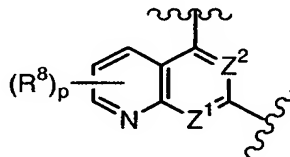
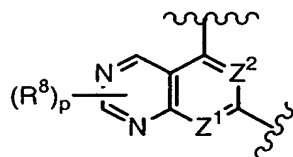
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**II-J**

**II-K**

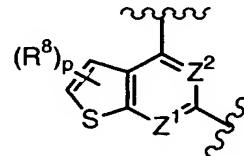
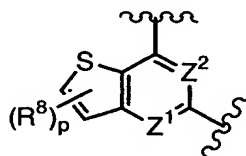
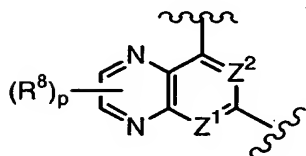
**II-L**



**II-M**

**II-N**

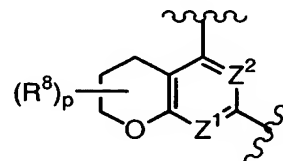
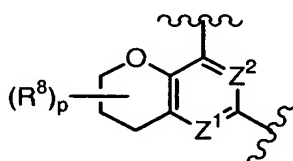
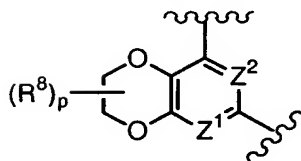
**II-O**



**II-P**

**II-Q**

**II-R**

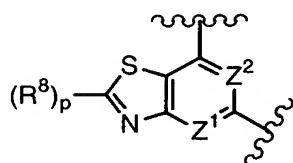


**II-S**

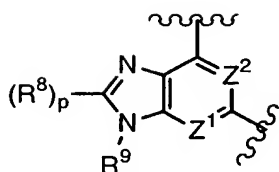
**II-T**

**II-U**

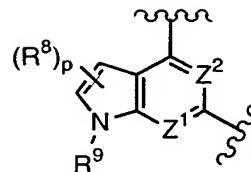
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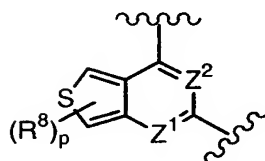
**II-V**



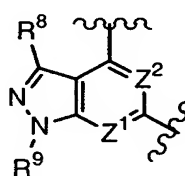
**II-W**



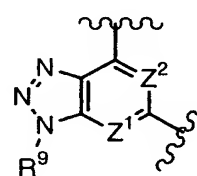
**II-X**



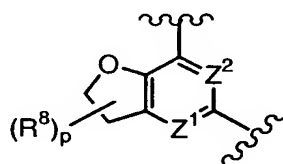
**II-Y**



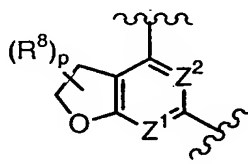
**II-Z**



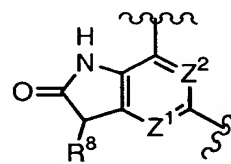
**II-AA**



**II-BB**



**II-CC**



or **II-DD;**

~~II-A, II-B, II-C, II-D, II-E, II-F, II-G, II-H, II-I, II-J, II-K, II-L, II-M, II-N, II-O, II-P, II-Q, II-R, II-S, II-T, II-U, II-V, II-W, II-X, II-Y, II-Z, II-AA, II-BB, II-CC, or II-DD;~~

[[c.]] (c) ring A is one of formulas **II-A, II-B, II-C, II-D, II-E, II-F, II-H, II-I, II-J, II-K, II-L, II-N, II-O, or II-DD;**

[[d.]] (d) ring A is one of formulas **II-A, II-B, II-C, II-D, II-E, II-H, or II-K;**

[[e.]] (e) ring A is one of formulas **II-A or II-B;**

[[f.]] (f) ring A is **II-A** and Z<sup>1</sup> is CR<sup>v</sup> and Z<sup>2</sup> is CR<sup>w</sup>;

[[g.]] (g) ring A is **II-A** and Z<sup>1</sup> is N and Z<sup>2</sup> is N;

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[[h.]] (h) ring A is **II-A** and  $Z^1$  is N and  $Z^2$  is  $CR^W$ ;  
[[i.]] (i) ring A is **II-A** and  $Z^1$  is  $CR^V$  and  $Z^2$  is N;  
[[j.]] (j) ring A is an optionally substituted aryl or heteroaryl moiety of formula **i**, **ii**, **iii** or **x**;

[[k.]] (k) ring A is a monocyclic ring system and  $R^V$  and  $R^W$ , when present, are hydrogen or amino;  $R^X$  groups, when present, is hydrogen, alkyl- or dialkylamino, acetamido, or a  $C_{1-4}$  aliphatic group such as methyl, ethyl, cyclopropyl, or isopropyl;  $R^Y$  groups, when present, is hydrogen, an optionally substituted group selected from hydrogen,  $C_{1-6}$  aliphatic,  $C_{1-6}$  heteroaliphatic, aryl, or heteroaryl,  $-Q_{(n)}N(R^7)_2$ ,  $-Q_{(n)}OR^7$ ,  $-Q_{(n)}SR^7$ ,  $-Q_{(n)}(C=O)O(R^7)$ ,  $-Q_{(n)}C(O)N(R^7)_2$ ,  $-Q_{(n)}NHC(O)R^7$ ,  $-Q_{(n)}NHSO_2R^7$ , or  $-Q_{(n)}SO_2N(R^7)_2$ , wherein n is 0 or 1, and wherein Q is preferably  $-(C(R''))_2-$ , wherein  $R''$  is hydrogen or  $C_{1-3}$ alkyl, and wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

[[l.]] (l) ring A is a monocyclic ring system and  $R^V$ ,  $R^W$  and  $R^X$  groups, when present, are hydrogen or amino;  $R^Y$  groups include groups selected from optionally substituted 5-6 membered heteroaryl or heterocyclyl rings, such as 2-pyridyl, 4-pyridyl, pyrrolidinyl, piperidinyl, morpholinyl, or piperazinyl; optionally substituted aryl or cycloalkyl rings such as phenyl, halogen substituted phenyl, alkoxy substituted phenyl, trifluoromethyl substituted phenyl, nitro substituted phenyl, methyl substituted phenyl; optionally substituted  $C_{1-6}$  aliphatic, such as methyl, ethyl, cyclopropyl, cyclopentyl, cyclohexyl, amino substituted cycloalkyl, acetamido substituted cycloalkyl, isopropyl, or t-butyl; alkoxyalkylamino

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such as methoxyethylamino; alkoxyalkyl such as methoxymethyl or methoxyethyl; aminoalkyl such as aminoethyl, dimethylaminoethyl; alkyl- or dialkylamino such as ethylamino or dimethylamino; alkyl- or dialkylaminoalkoxy such as dimethylaminopropoxy; alkyl- or dialkylaminoalkoxyalkyl such as dimethylaminoethoxymethyl; and acetamido;

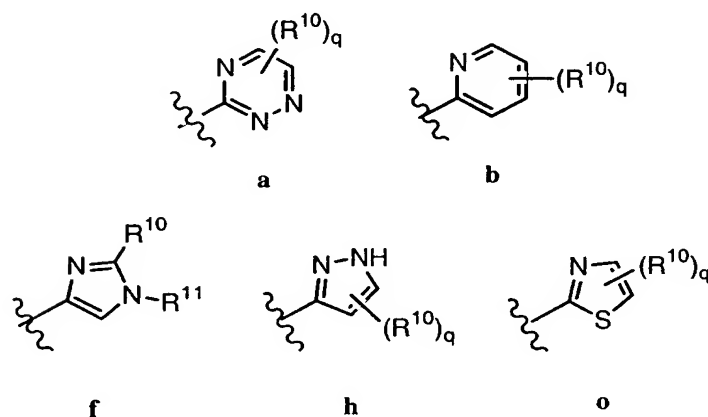
[[m.]] (m) ring A system is a bicyclic ring system and the ring formed when  $R^x$  and  $R^y$  are taken together may be substituted or unsubstituted;

[[n.]] (n) ring A system is a bicyclic ring system formed by  $R^x$  and  $R^y$  taken together and substituted by one or more occurrences of  $R^8$  or  $R^9$ , wherein each occurrence of  $R^8$  is independently  $-R^7$ , halo,  $-O(CH_2)_{2-4}-N(R^7)_2$ ,  $-O(CH_2)_{2-4}-R^7$ ,  $-OR^7$ ,  $-N(R^7)-(CH_2)_{2-4}-N(R^7)_2$ ,  $-N(R^7)-(CH_2)_{2-4}-R^7$ ,  $-C(=O)R^7$ ,  $-CO_2R^7$ ,  $-COCOR^7$ ,  $-NO_2$ ,  $-CN$ ,  $-S(O)R^7$ ,  $-SO_2R^7$ ,  $-SR^7$ ,  $-N(R^7)_2$ ,  $-CON(R^7)_2$ ,  $-SO_2N(R^7)_2$ ,  $-OC(=O)R^7$ ,  $-N(R^7)COR^7$ ,  $-N(R^7)CO_2$ (optionally substituted  $C_{1-6}$  aliphatic),  $-N(R^7)N(R^7)_2$ ,  $-C=NN(R^7)_2$ ,  $-C=N-OR$ ,  $-NHOR^7$ ,  $-N(R^7)CON(R^7)_2$ ,  $-N(R^7)SO_2N(R^7)_2$ ,  $-N(R^7)SO_2R^7$ , or  $-OC(=O)N(R^7)_2$ , wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring; and each occurrence of  $R^9$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring,

(iii) Y is defined according to one of the following groups:

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[[a.]] (a) Y is an optionally substituted heteroaryl moiety;  
[[b.]] (b) Y is selected from one of the heteroaryl moieties **a-y**;  
[[c.]] (c) Y is selected from one of the following heteroaryl moieties:



wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $-R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

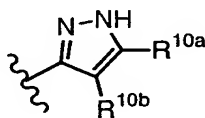
[[d.]] (d) Y is a pyrazole moiety, **h**;

[[e.]] (e) Y is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl;

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[[f.]] (f) Y is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,  $CONH(cyclohexyl)$ ,  $CON(Et)_2$ ,  $CON(CH_3)CH_2Ph$ ,  $CONH(n-C_3H_7)$ ,  $CON(Et)CH_2CH_2CH_3$ ,  $CONHCH_2CH(CH_3)_2$ ,  $CON(n-C_3H_7)_2$ ,  $CO(3-methoxymethylpyrrolidin-1-yl)$ ,  $CONH(3-tolyl)$ ,  $CONH(4-tolyl)$ ,  $CONHCH_3$ ,  $CO(morpholin-1-yl)$ ,  $CO(4-methylpiperazin-1-yl)$ ,  $CONHCH_2CH_2OH$ ,  $CONH_2$ , and  $CO(piperidin-1-yl)$ .

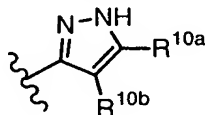
[[g.]] (g) Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of  $R^{10}$~~  ( $R^{10a}$  and  $R^{10b}$  ~~as depicted~~),



**h'**

wherein each occurrence of  $R^{10a}$  is hydrogen,  $C_{1-4}$ aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl, and  $R^{10b}$  is hydrogen;

[[h.]] (h) Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of  $R^{10}$~~  ( $R^{10a}$  and  $R^{10b}$  ~~as depicted~~),



**h'**

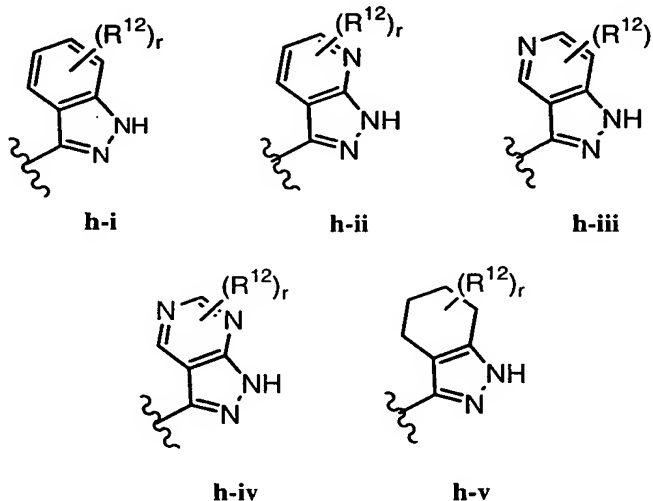


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wherein each occurrence of  $R^{10a}$  is hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,  $CONH(cyclohexyl)$ ,  $CON(Et)_2$ ,  $CON(CH_3)CH_2Ph$ ,  $CONH(n-C_3H_7)$ ,  $CON(Et)CH_2CH_2CH_3$ ,  $CONHCH_2CH(CH_3)_2$ ,  $CON(n-C_3H_7)_2$ ,  $CO(3-methoxymethylpyrrolidin-1-yl)$ ,  $CONH(3-tolyl)$ ,  $CONH(4-tolyl)$ ,  $CONHCH_3$ ,  $CO(morpholin-1-yl)$ ,  $CO(4-methylpiperazin-1-yl)$ ,  $CONHCH_2CH_2OH$ ,  $CONH_2$ , and  $CO(piperidin-1-yl)$ , and  $R^{10b}$  is hydrogen;

[[i.]] (i) Y is heteroaryl moiety substituted by at least two occurrences of  $R^{10}$  and where two occurrences of  $R^{10}$  taken together may represent an optionally substituted group selected from cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl;

[[j.]] (j) Y represents one of the following heteroaryl moieties:



wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), wherein the  $(C_{1-3}$  alkyl) is most preferably methyl;

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(iv) for compounds of formula **IIa(i)**,  $R^4$  is defined according to one of the following groups:

[[a.]] (a)  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl, or

[[b.]] (b)  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ ;

(v) for compounds of formula **IIb(i)**,  $R^3$  is defined according to one of the following groups:

[[a.]] (a)  $R^3$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl, or

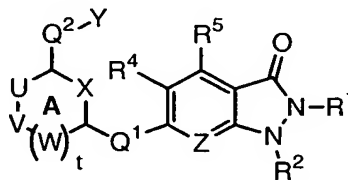
[[b.]] (b)  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ ; and

(vi)  $R^5$  is defined according to one of the following groups:

[[a.]] (a) hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ , or

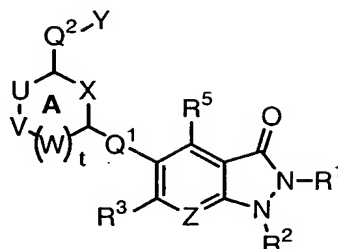
[[b.]] (b)  $R^5$  is hydrogen, Cl,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

39. (Currently amended) The compound of claim 1, wherein either of  $R^3$  or  $R^4$  is  $-Q^1-A-Q^2-Y$ , wherein A is an optionally substituted cycloaliphatic or heterocycloaliphatic moiety and compounds have the general formula **IIIa** or **IIIb**:



**IIIa**

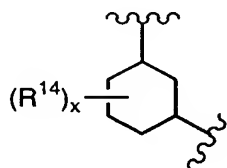
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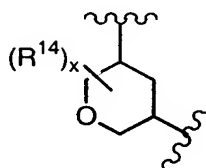
**IIIb**

wherein U is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O; V is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O; W is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O, and X is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O, and t is 0, 1 or 2, wherein each occurrence of  $\text{R}^{13}$  is [[is]] independently hydrogen,  $-\text{R}'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(\text{R}')$ ,  $-\text{CON}(\text{R}')_2$ , or  $-\text{SO}_2\text{R}'$ , wherein each occurrence of  $\text{R}'$  is independently hydrogen, optionally substituted group selected from  $\text{C}_{1-6}$  aliphatic,  $\text{C}_{1-6}$  heteroaliphatic, aryl or heteroaryl, or two occurrences of  $\text{R}'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring; and wherein each occurrence of  $\text{R}^{14}$  is independently  $-\text{R}$ , with the proviso that when any one of U, V, W, or X is O or  $\text{NR}^{13}$ , an adjacent group U, V, W or X is  $\text{C}(\text{R}^{14})_2$ .

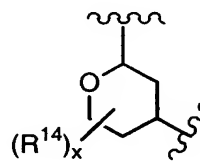
40. (Original) The compound of claim 39, wherein ring A is selected from the following group:



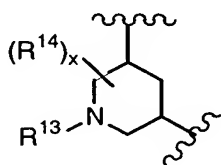
**xi**



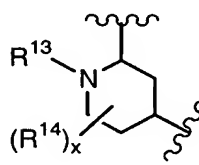
**xii**



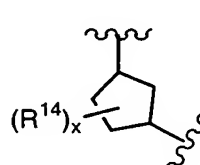
**xiii**



**xiv**



**xv**



**xvi**

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wherein  $R^{13}$  is hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or heteroaryl ring;  $R^{14}$  is oxo or  $-R$ ; and  $x$  is 0-4.

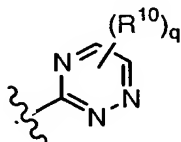
41. (Original) The compound of claim 40, wherein  $x$  is 0 or 1 and  $R^{14}$  is -halo,  $-\text{N}(R^7)_2$ ,  $-\text{C}_{1-3}$  alkyl,  $-\text{C}_{1-3}$  haloalkyl,  $-\text{NO}_2$ ,  $-\text{O}(\text{C}_{1-3}$  alkyl),  $-\text{CO}_2(\text{C}_{1-3}$  alkyl),  $-\text{CN}$ ,  $-\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{SO}_2\text{NH}_2$ ,  $-\text{OC}(\text{O})\text{NH}_2$ ,  $-\text{NH}_2\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{NHC}(\text{O})(\text{C}_{1-3}$  alkyl),  $-\text{C}(\text{O})\text{NH}_2$ , and  $-\text{CO}(\text{C}_{1-3}$  alkyl), wherein the  $(\text{C}_{1-3}$  alkyl) is most preferably methyl.

42. (Original) The compound of claim 40, wherein  $R^{13}$  is hydrogen or  $\text{C}_{1-4}$  alkyl.

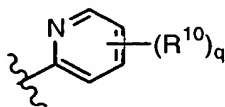
43. (Previously amended) The compound of claim 40, wherein ring A is selected from one of **xi**, **xii** or **xvi** and  $x$  is 0.

44. (Original) The compound of claim 39, wherein Y is an optionally substituted heteroaryl moiety.

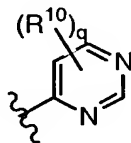
45. (Currently amended) The compound of claim 39, wherein Y is selected from one of the following heteroaryl moieties **a-y**:



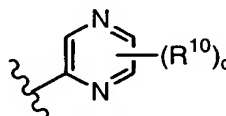
**a**



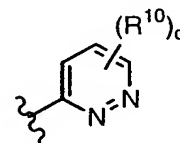
**b**



**c**

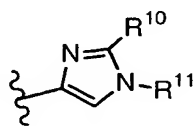


**d**

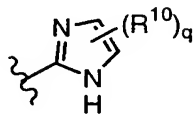


**e**

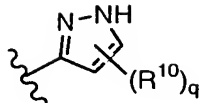
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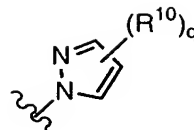
f



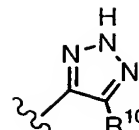
g



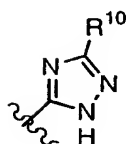
h



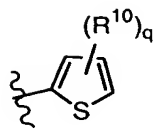
i



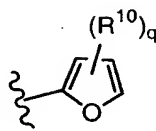
j



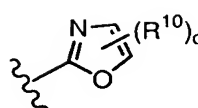
k



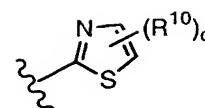
l



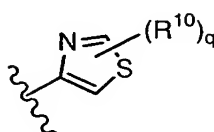
m



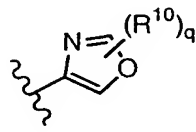
n



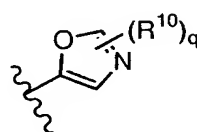
o



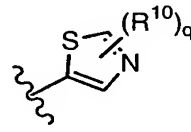
p



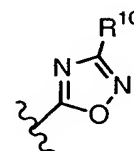
q



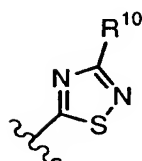
r



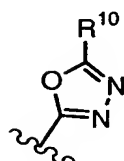
s



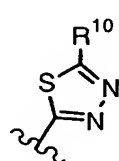
t



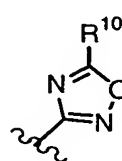
u



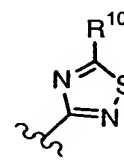
v



w



x

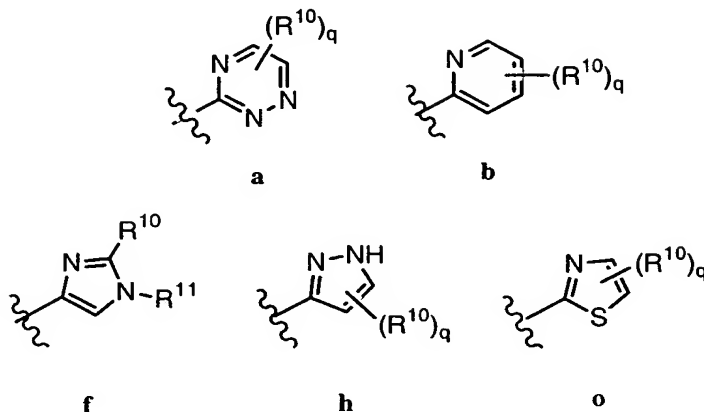


y

wherein q is 0-4,  $R^{10}$  is -R, wherein ~~R is defined generally above and in classes and subclasses herein,~~ and wherein each occurrence of  $R^{11}$  is independently hydrogen, - $R'$ , - $COR'$ , - $CO_2(R')$ , - $CON(R')_2$ , or - $SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

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46. (Currently amended) The compound of claim 45, wherein Y is one of the following heteroaryl moieties:



wherein q is 0-4,  $R^{10}$  is -R, ~~wherein R is defined generally above and in classes and subclasses herein~~, and wherein each occurrence of  $R^{11}$  is independently hydrogen, - $R'$ , -COR', -CO<sub>2</sub>(R'), -CON(R')<sub>2</sub>, or -SO<sub>2</sub>R', wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

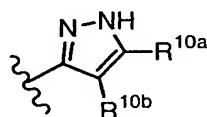
47. (Original) The compound of claim 45, wherein each  $R^{10}$  is independently hydrogen, C<sub>1-4</sub>aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, or (N-heterocycle)carbonyl.

48. (Original) The compound of claim 45, wherein each occurrence of  $R^{10}$  is independently methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl, CO<sub>2</sub>H, CO<sub>2</sub>CH<sub>3</sub>, CH<sub>2</sub>OH, CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>Ph, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>, CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph, CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),

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CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, or CO(piperidin-1-yl).

49. (Currently amended) The compound of claim 45, wherein, Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of R<sup>10</sup>~~ (R<sup>10a</sup> and R<sup>10b</sup>, [I])

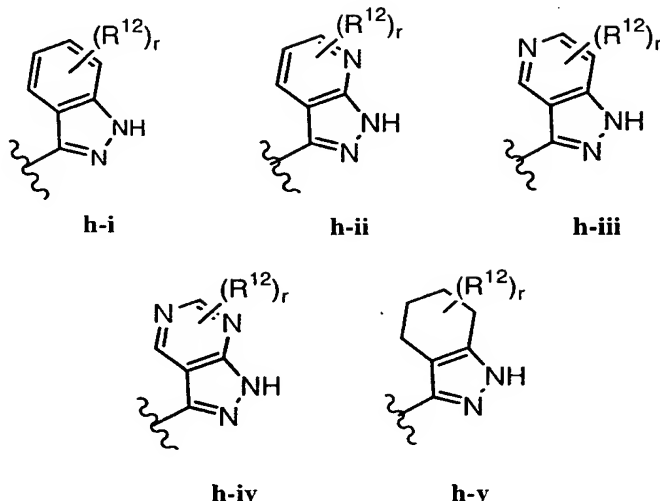


**h'**

wherein R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl; and R<sup>10b</sup> is hydrogen.

50 [[51]]. (Currently amended) The compound of claim 49, wherein ~~two occurrences of R<sup>10</sup>~~ (R<sup>10a</sup> and R<sup>10b</sup> ~~as depicted in formula **h'**~~) taken together ~~may~~ represent a substituted or unsubstituted cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl moiety and comprises one of the following groups:

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wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), ~~wherein the  $(C_{1-3}$  alkyl) is most preferably methyl~~, wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

51 [[52]]. (Original) The compound of claim 39, wherein when  $R^3$  is  $-Q^1-A-Q^2-Y$ ,  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl.

52 [[53]]. (Currently amended) The compound of claim 51 [[52]], wherein  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

53 [[54]]. (Currently amended) The compound of claim 39, wherein when  $R^4$  is  $-Q^1-A-Q^2-Y$ ,  $R^3$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino,



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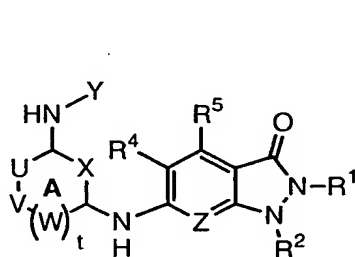
aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl.

54 [[55]]. (Currently amended) The compound of claim 53 [[54]], wherein  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

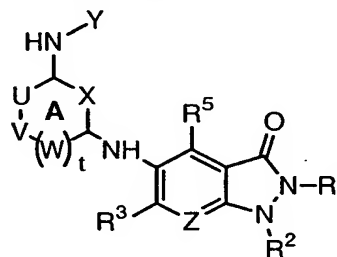
55 [[56]]. (Currently amended) The compound of claim 39, wherein  $R^5$  is hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ .

56 [[57]]. (Currently amended) The compound of claim 55, [[56]] wherein  $R^5$  is Cl,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

57 [[58]]. (Currently amended) The compound of claim 39, wherein  $Q^1$  is NH and  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(i)** or **IIIb(i)**:



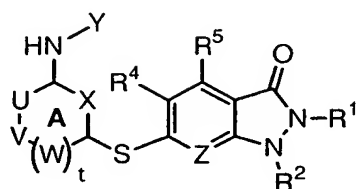
**IIIa(i)**



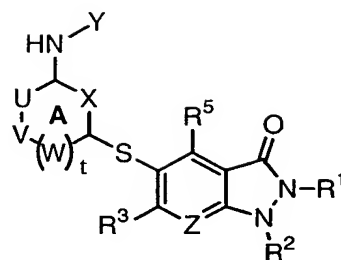
**IIIb(i)**

58 [[59]]. (Currently amended) The compound of claim 39 wherein  $Q^1$  is S, and  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(ii)** or **IIIb(ii)**:

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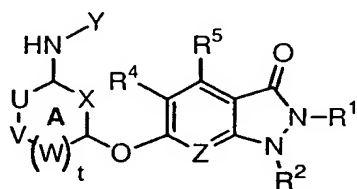


IIIa(ii)

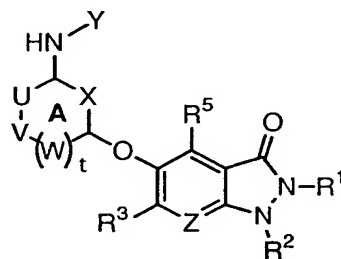


IIIb(ii)

59 [[60]]. (Currently amended) The compound of claim 39 wherein Q<sup>1</sup> is O and Q<sup>2</sup> is NH, and compounds are defined by the general formula IIIa(iii) or IIIb(iii):

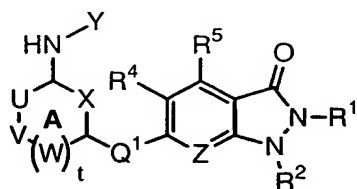


IIIa(iii)

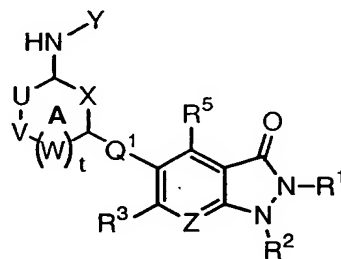


IIIb(iii)

60 [[61]]. (Currently amended) The compound of claim 39, wherein Q<sup>2</sup> is NH, and compounds are defined by the general formula IIIa(iv) or IIIb(iv):



IIIa(iv)

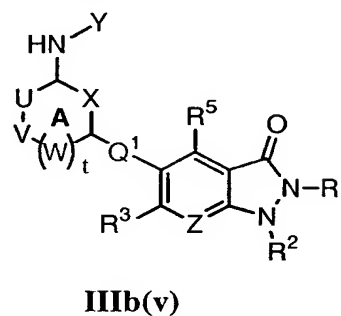
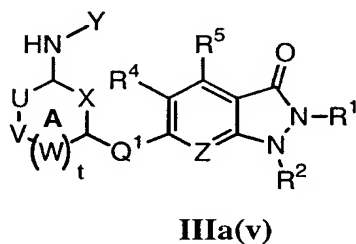


IIIb(iv)

wherein Q<sup>1</sup> is -C(R<sup>A</sup>)<sub>2</sub>-.

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61 [[62]]. (Currently amended) The compound of claim 39, wherein  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(v)** or **IIIb(v)**:



wherein  $Q^1$  is a direct bond.

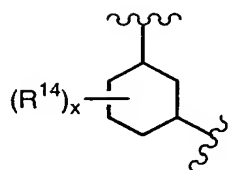
62 [[63]]. (Currently amended) The compound of any one of claims 57, 58, 59, 60,  
or 61 ~~58, 59, 60, 61, or 62~~ wherein:

(i)  $R^1$ ,  $R^2$ ,  $R^4$  and  $R^5$  are each hydrogen and wherein Z is  $\underline{CR^6}$  [[CHR<sup>6</sup>]]  
 and  $R^6$  is hydrogen; or  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^5$  are each hydrogen and wherein Z is  $\underline{CR^6}$   
 [[CHR<sup>6</sup>]] and  $R^6$  is hydrogen;

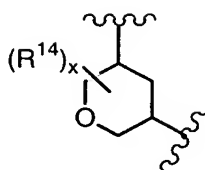
(ii) ring A is defined according to one of the following groups:

[[a.]] (a) ring A is selected from one of the groups:

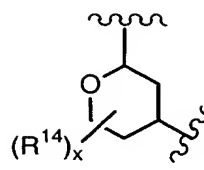
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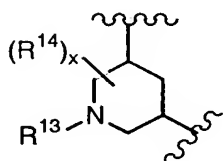
xi



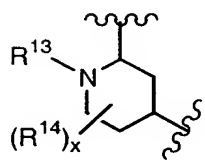
xii



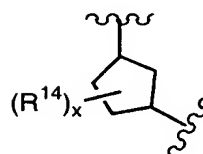
xiii



xiv



xv



xvi

wherein  $R^{13}$  is hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;  $R^{14}$  is oxo or  $-R$ ; and  $x$  is 0-4; or

[[b.]] (b) ring A is selected from one of **xi**, **xii** or **xvi** and  $x$  is 0 or 1;  $R^{14}$  is -halo,  $-\text{N}(R^7)_2$ ,  $-\text{C}_{1-3}$  alkyl,  $-\text{C}_{1-3}$  haloalkyl,  $-\text{NO}_2$ ,  $-\text{O}(\text{C}_{1-3}$  alkyl),  $-\text{CO}_2(\text{C}_{1-3}$  alkyl),  $-\text{CN}$ ,  $-\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{SO}_2\text{NH}_2$ ,  $-\text{OC}(\text{O})\text{NH}_2$ ,  $-\text{NH}_2\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{NHC}(\text{O})(\text{C}_{1-3}$  alkyl),  $-\text{C}(\text{O})\text{NH}_2$ , and  $-\text{CO}(\text{C}_{1-3}$  alkyl), wherein the  $(\text{C}_{1-3}$  alkyl) is most preferably methyl; and  $R^{13}$  is hydrogen or  $\text{C}_{1-4}$ alkyl;

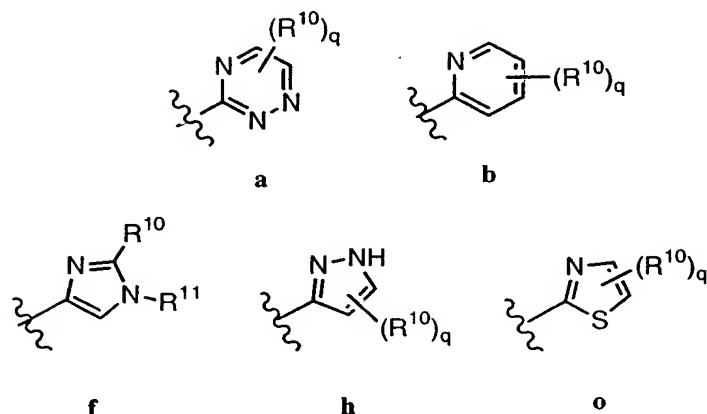
(iii) Y is defined according to one of the following groups:

[[a.]] (a) Y is an optionally substituted heteroaryl moiety;

[[b.]] (b) Y is selected from one of the heteroaryl moieties **a-y**;

[[c.]] (c) Y is selected from one of the following heteroaryl moieties:

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wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $-R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

[[c.]] (d)  $Y$  is a pyrazole moiety, **h**;

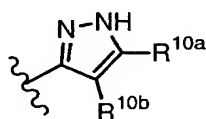
[[d.]] (e)  $Y$  is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl;

[[e.]] (f)  $Y$  is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, *t*-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,

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CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>,  
CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph,  
CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),  
CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-  
methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl),  
CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl),  
CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, and CO(piperidin-1-yl);

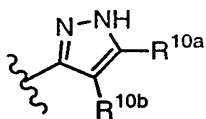
[[f.]] (g) Y is a pyrazole moiety, h', wherein the pyrazole is  
substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup> as depicted),



h'

wherein each occurrence of R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic,  
alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl,  
aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl,  
alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-  
heterocycle)carbonyl, and R<sup>10b</sup> is hydrogen;

[[g.]] (h) Y is a pyrazole moiety, h', wherein the pyrazole is  
substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup> as depicted),



h'

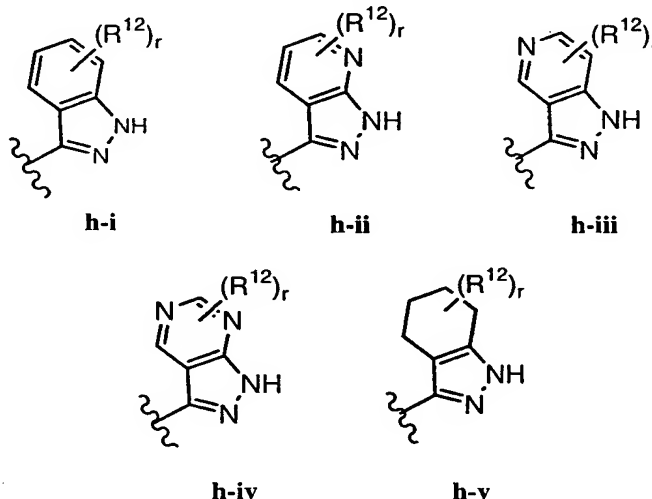
wherein each occurrence of R<sup>10a</sup> is hydrogen, methyl, cyclopropyl, ethyl,  
isopropyl, propyl, t-butyl, cyclopentyl, phenyl, CO<sub>2</sub>H, CO<sub>2</sub>CH<sub>3</sub>, CH<sub>2</sub>OH,  
CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>Ph,  
CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>,  
CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph, CONH(cyclohexyl),

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CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>), CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, and CO(piperidin-1-yl, and R<sup>10b</sup> is hydrogen;

[[h.]] (i) Y is heteroaryl moiety substituted by at least two occurrences of R<sup>10</sup> and where two occurrences of R<sup>10</sup> taken together may represent an optionally substituted group selected from cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl;

[[i.]] (j) Y represents one of the following heteroaryl moieties:



wherein r is 0-4 and R<sup>12</sup> is hydrogen, -halo, -N(R<sup>7</sup>)<sub>2</sub>, -C<sub>1-3</sub> alkyl, -C<sub>1-3</sub> haloalkyl, -NO<sub>2</sub>, -O(C<sub>1-3</sub> alkyl), -CO<sub>2</sub>(C<sub>1-3</sub> alkyl), -CN, -SO<sub>2</sub>(C<sub>1-3</sub> alkyl), -SO<sub>2</sub>NH<sub>2</sub>, -OC(O)NH<sub>2</sub>, -NH<sub>2</sub>SO<sub>2</sub>(C<sub>1-3</sub> alkyl), -NHC(O)(C<sub>1-3</sub> alkyl), -C(O)NH<sub>2</sub>, and -CO(C<sub>1-3</sub> alkyl), wherein the (C<sub>1-3</sub> alkyl) is most preferably methyl;

(iv) R<sup>4</sup> is defined according to one of the following groups:

[[a.]] (a) R<sup>4</sup> is hydrogen, C<sub>1-3</sub>aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl, or

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[[b.]] (b)  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or -  
CH<sub>2</sub>NH<sub>2</sub>;

(v)  $R^3$  is defined according to one of the following groups:

[[a.]] (a)  $R^3$  is hydrogen, C<sub>1-3</sub>aliphatic, hydroxy, hydroxyalkyl, alkoxy,  
amino, aminoalkyl, mono- or di- alkylamino, mono- or di-  
alkylaminoalkyl, or optionally substituted phenyl, or

[[b.]] (b)  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or -  
CH<sub>2</sub>NH<sub>2</sub>; and

(vi)  $R^5$  is defined according to one of the following groups:

[[a.]] (a) hydrogen, halogen, -NO<sub>2</sub>, -CN, hydroxy, optionally substituted  
C<sub>1-3</sub>alkyl, optionally substituted alkoxy, -SO<sub>2</sub>NH<sub>2</sub>, or -C(O)alkyl, or

[[b.]] (b)  $R^5$  is hydrogen, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, CH<sub>3</sub>, -CN, -SO<sub>2</sub>NH<sub>2</sub> or -  
C(O)Me.

63-83 [[64-84]]. (Canceled)

84 [[85]]. (Currently amended) A pharmaceutical composition comprising a  
compound of claim 1, and a pharmaceutically acceptable carrier, adjuvant, or vehicle.

85 [[86]]. (Canceled)

86 [[87]]. (Currently amended) A method of inhibiting a PRAK, GSK3, ERK2,  
CDK2, MK2, SRC, SYK, or Aurora-2 family kinase activity in a biological sample  
comprising the step of contacting said biological sample with:

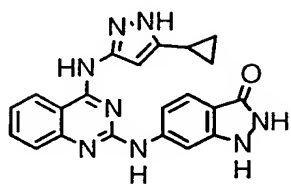
- a) a composition according to claim 84 [[85]]; or
- b) a compound of claim 1.

87-89 [[88-90]]. (Canceled)

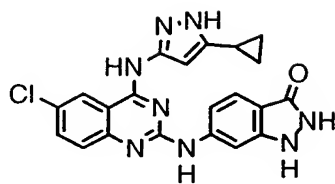
90. (New) The compound according to claim 1 selected from the following:



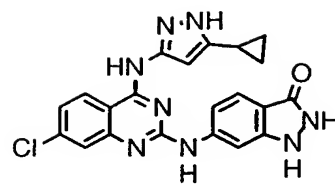
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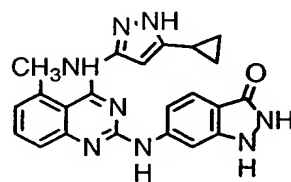
II-(i)-1



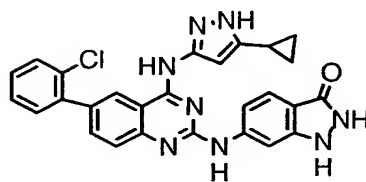
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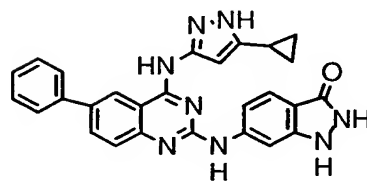
II-(i)-3



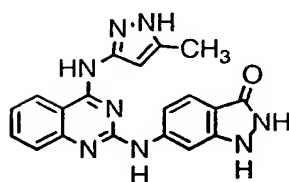
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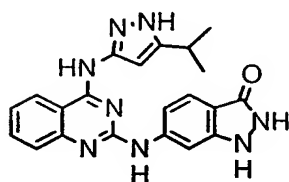
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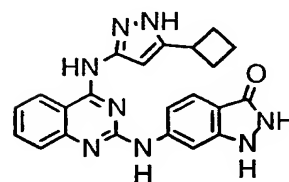
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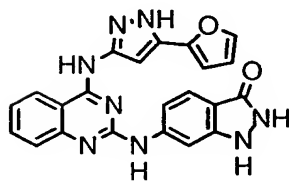
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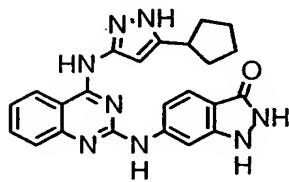
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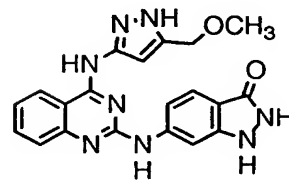
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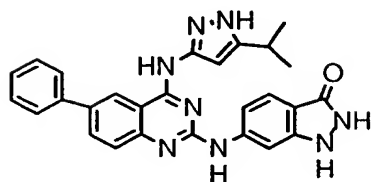
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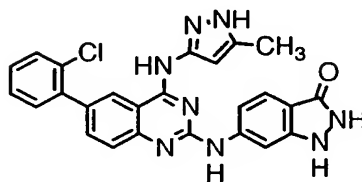
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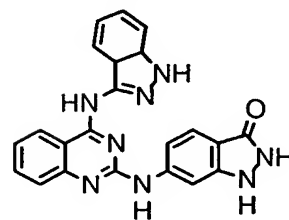
II-(i)-12



II-(i)-13

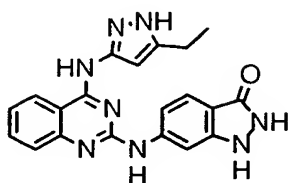


II-(i)-14

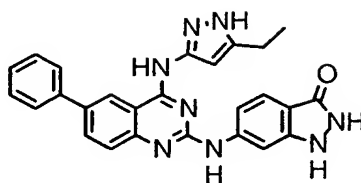


II-(i)-15

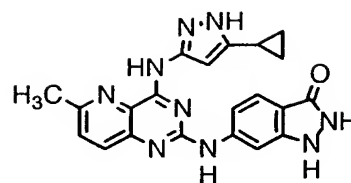
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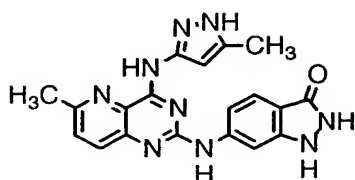
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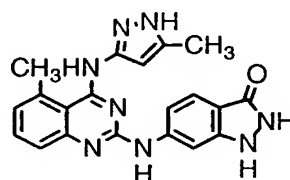
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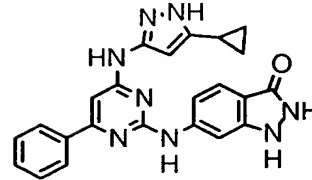
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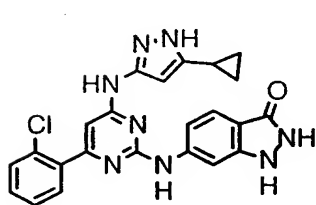
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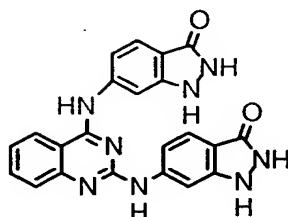
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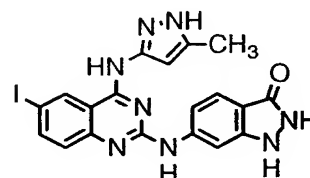
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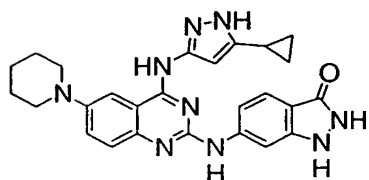
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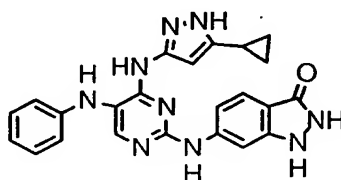
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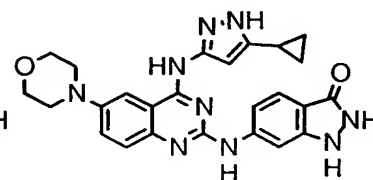
II-(i)-25



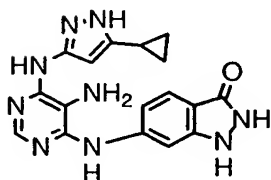
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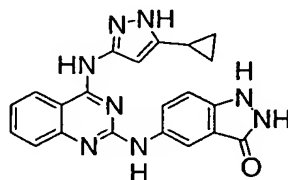
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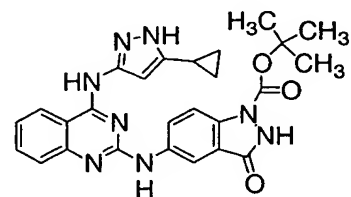
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II-(i)-29

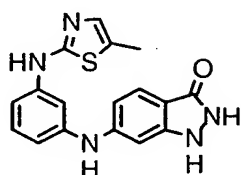


II-(i)-30

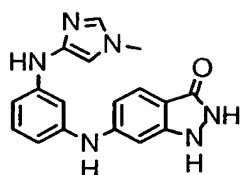


II-(i)-31

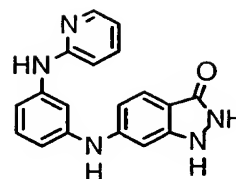
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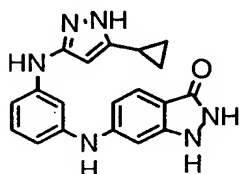
II-(i)-32



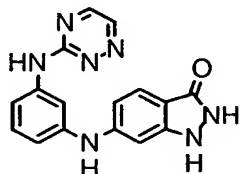
II-(i)-33



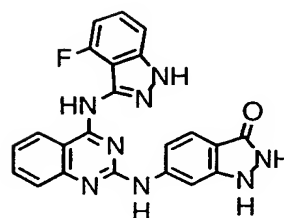
II-(i)-34



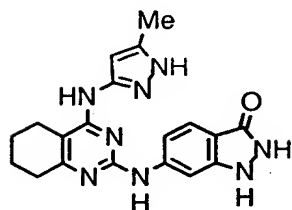
II-(i)-35



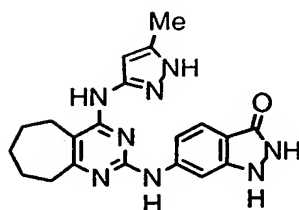
II-(i)-36



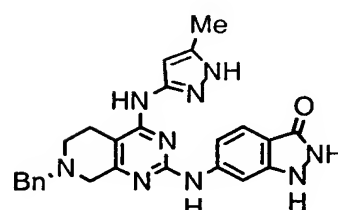
II-(i)-37



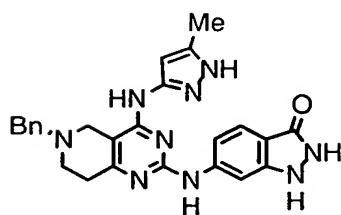
II-(i)-38



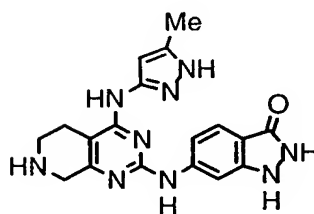
II-(i)-39



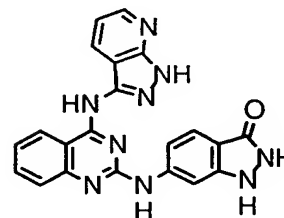
II-(i)-40



II-(i)-41

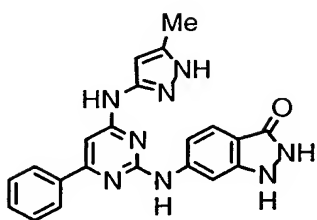


II-(i)-42

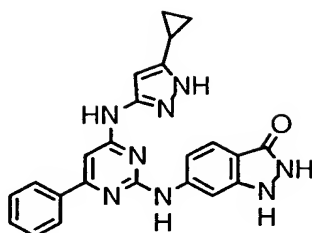


II-(i)-43

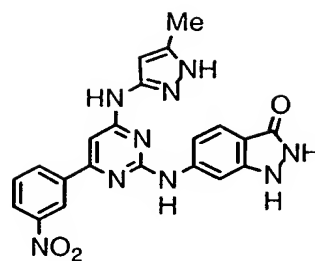
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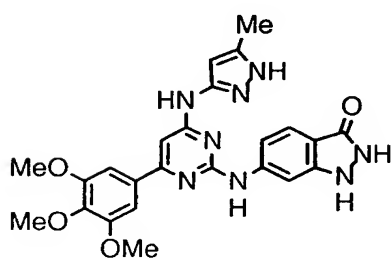
II-(i)-44



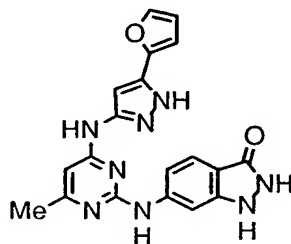
II-(i)-45



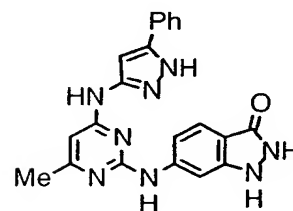
II-(i)-46



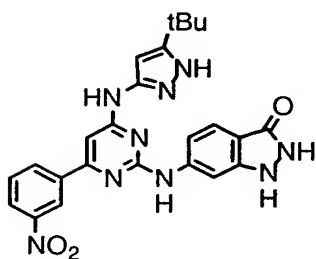
II-(i)-47



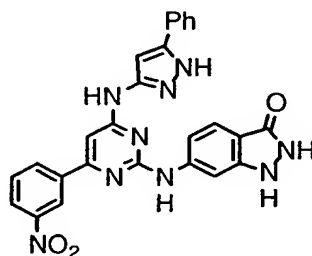
II-(i)-48



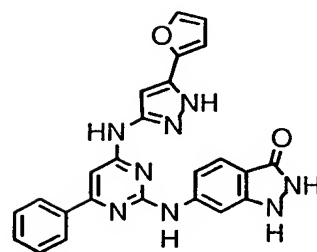
II-(i)-49



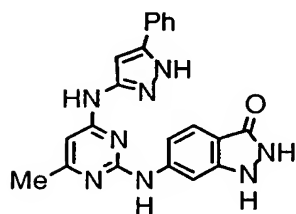
II-(i)-50



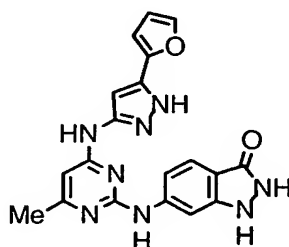
II-(i)-51



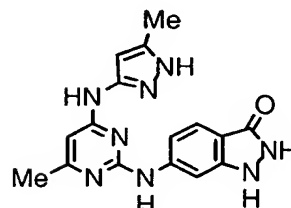
II-(i)-52



II-(i)-53

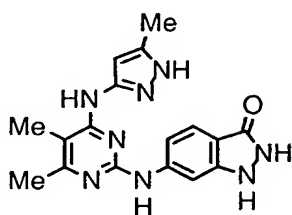


II-(i)-54

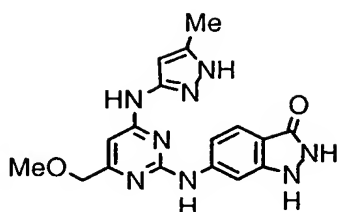


II-(i)-55

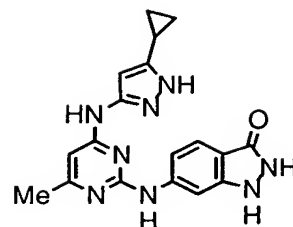
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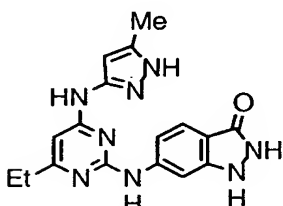
**II-(i)-56**



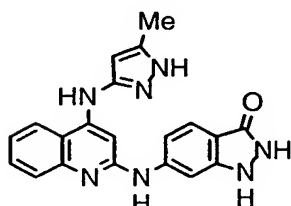
**II-(i)-57**



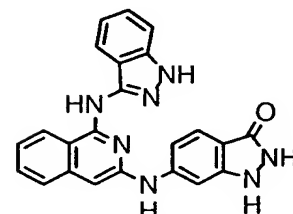
**II-(i)-58**



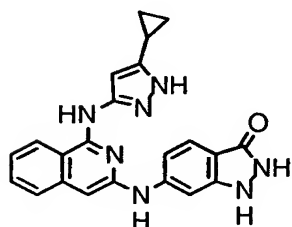
**II-(i)-59**



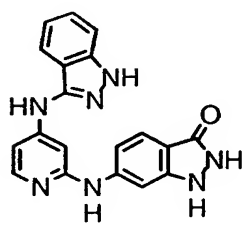
**II-(i)-60**



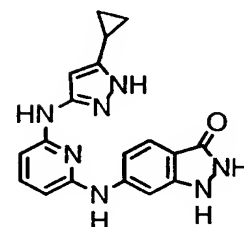
**II-(i)-61**



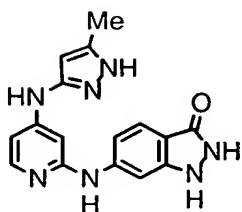
**II-(i)-62**



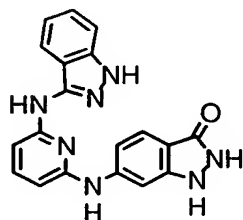
**II-(i)-63**



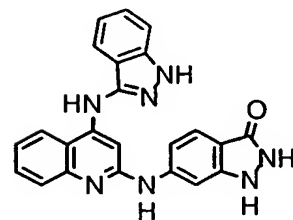
**II-(i)-64**



**II-(i)-65**

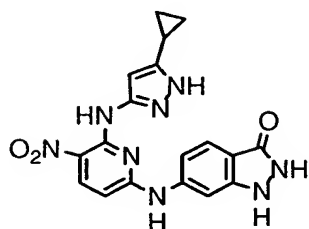


**II-(i)-66**

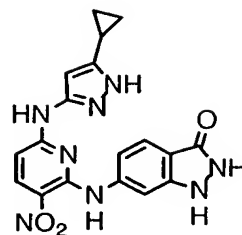


**II-(i)-67**

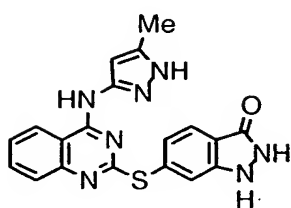
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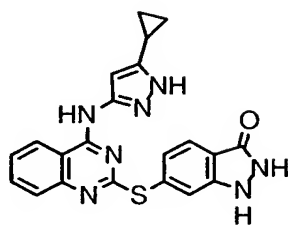
**II-(i)-68**



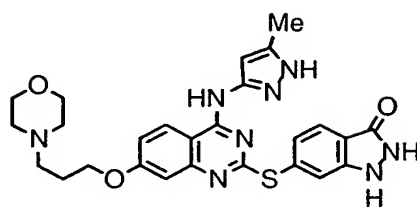
**II-(i)-69**



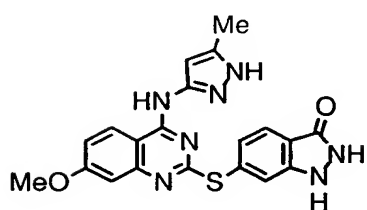
**II-(ii)-1**



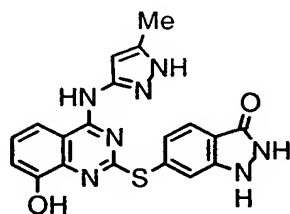
**II-(ii)-2**



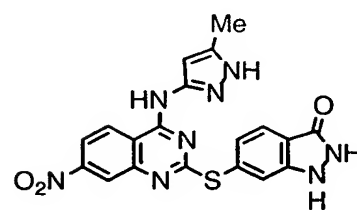
**II-(ii)-3**



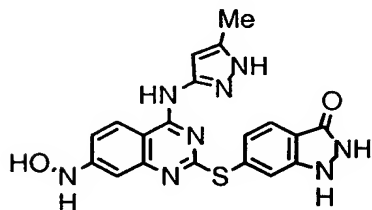
**II-(ii)-4**



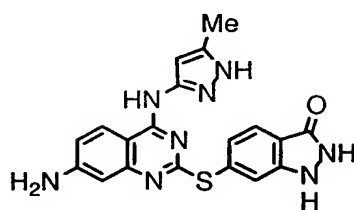
**II-(ii)-5**



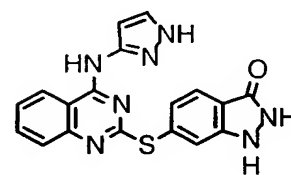
**II-(ii)-6**



**II-(ii)-7**

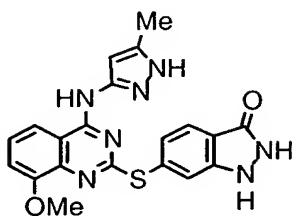


**II-(ii)-8**

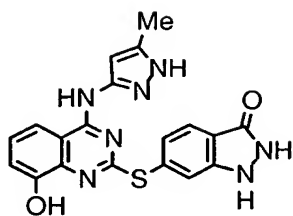


**II-(ii)-9**

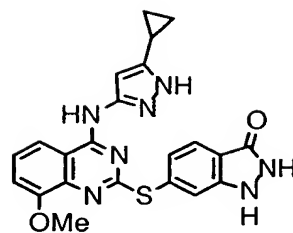
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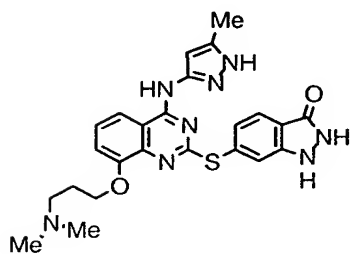
**II-(ii)-10**



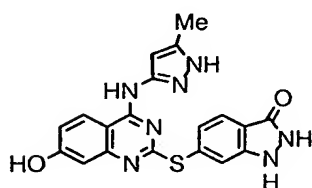
**II-(ii)-11**



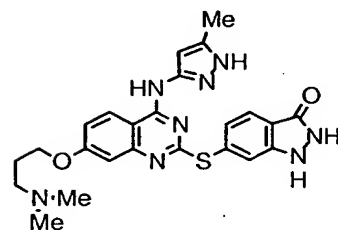
**II-(ii)-12**



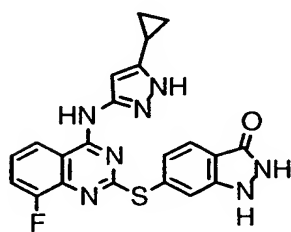
**II-(ii)-13**



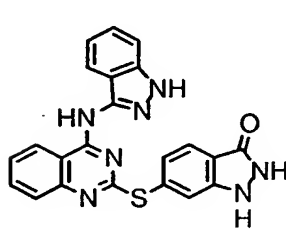
**II-(ii)-14**



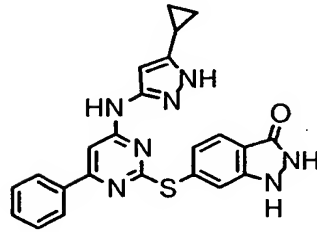
**II-(ii)-15**



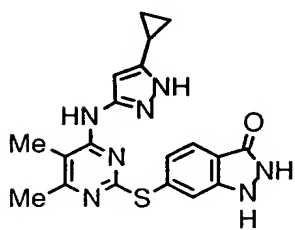
**II-(ii)-16**



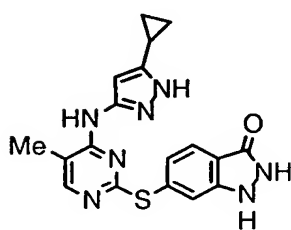
**II-(ii)-17**



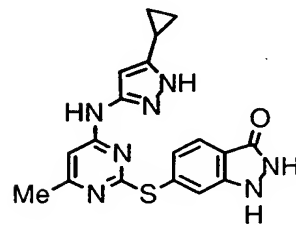
**II-(ii)-18**



**II-(ii)-19**

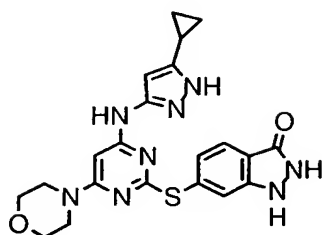


**II-(ii)-20**

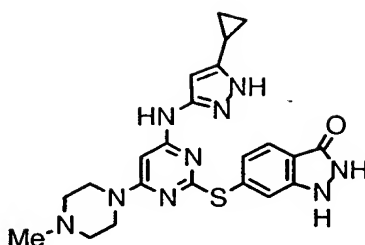


**II-(ii)-21**

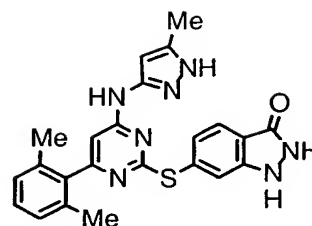
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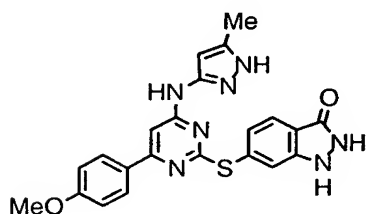
II-(ii)-22



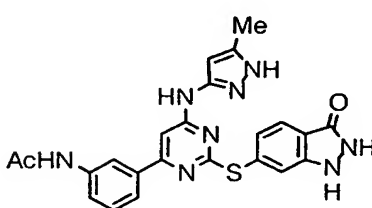
II-(ii)-23



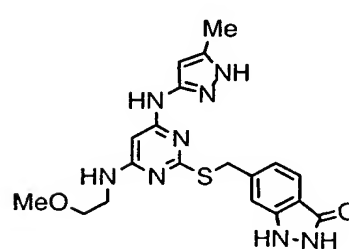
II-(ii)-24



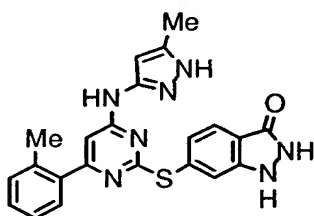
II-(ii)-25



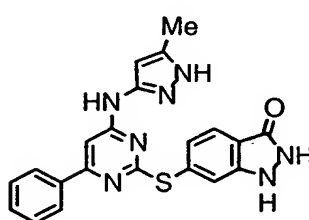
II-(ii)-26



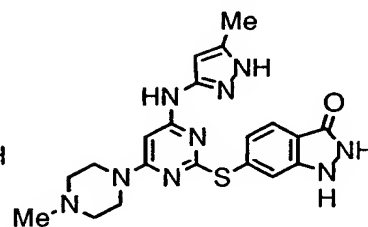
II-(ii)-27



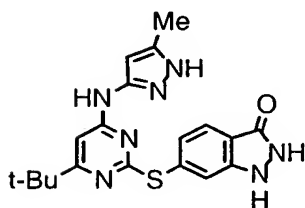
II-(ii)-28



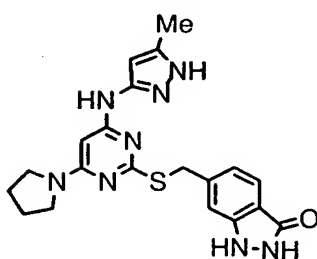
II-(ii)-29



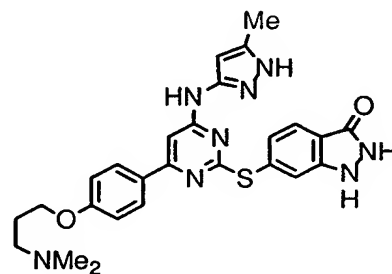
II-(ii)-30



II-(ii)-31



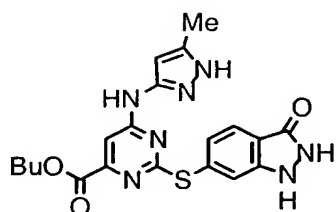
II-(ii)-32



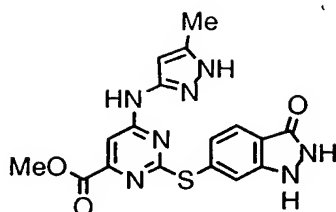
II-(ii)-33



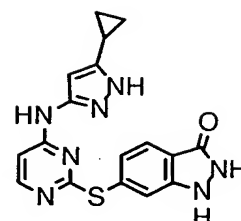
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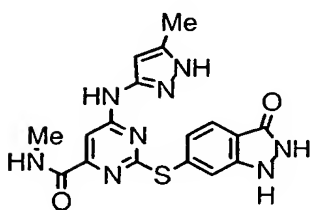
**II-(ii)-34**



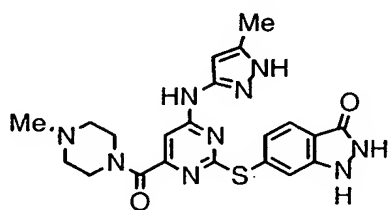
**II-(ii)-35**



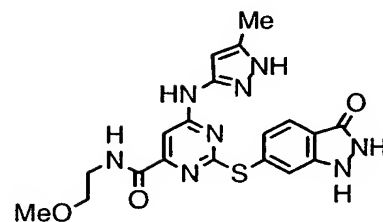
**II-(ii)-36**



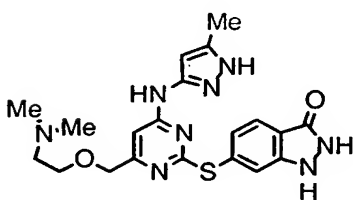
**II-(ii)-37**



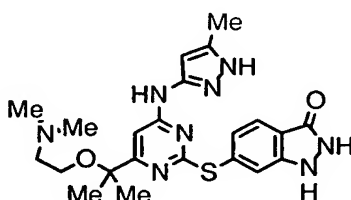
**II-(ii)-38**



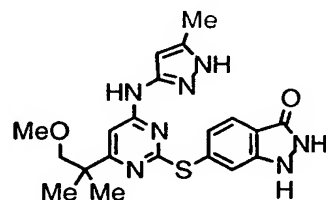
**II-(ii)-39**



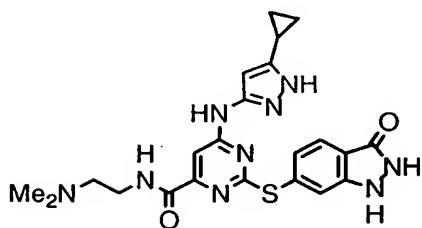
**II-(ii)-40**



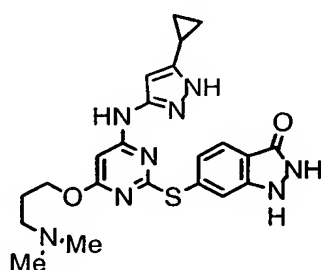
**II-(ii)-41**



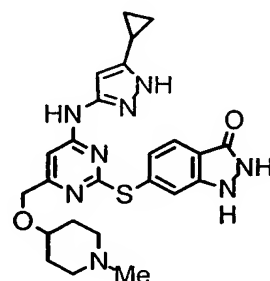
**II-(ii)-42**



**II-(ii)-43**

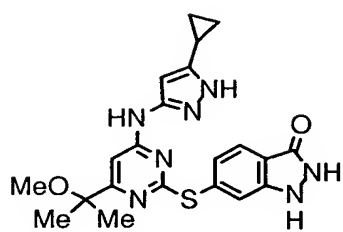


**II-(ii)-44**

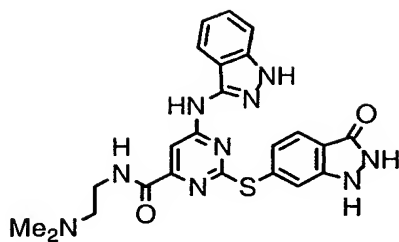


**II-(ii)-45**

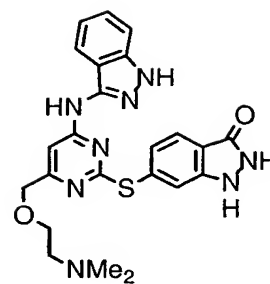
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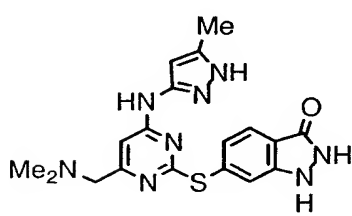
II-(ii)-46



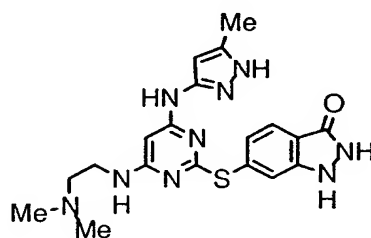
II-(ii)-47



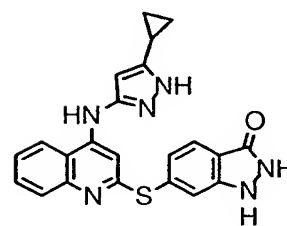
II-(ii)-48



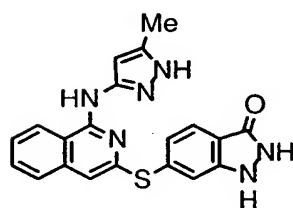
II-(ii)-49



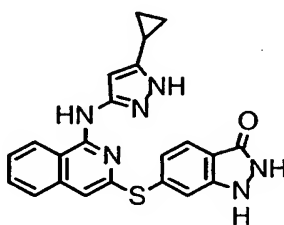
II-(ii)-50



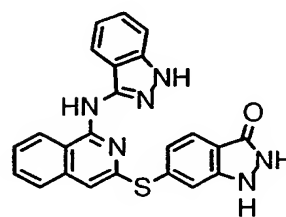
II-(ii)-51



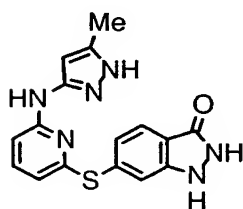
II-(ii)-52



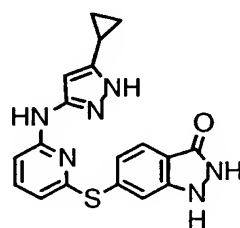
II-(ii)-53



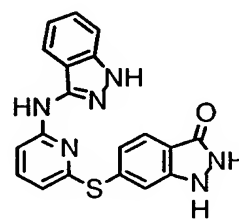
II-(ii)-54



II-(ii)-55

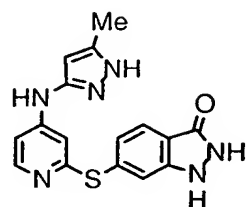


II-(ii)-56

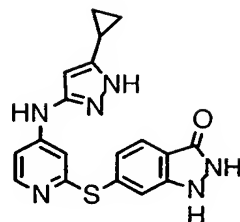


II-(ii)-57

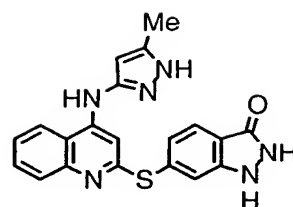
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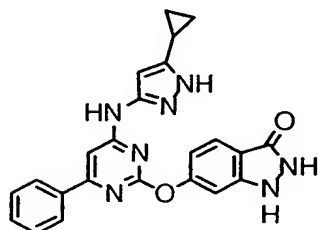
**II-(ii)-58**



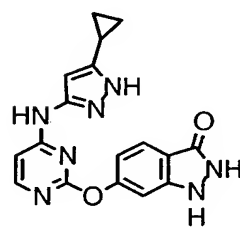
**II-(ii)-59**



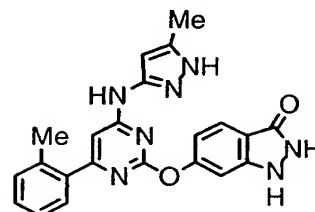
**II-(ii)-60**



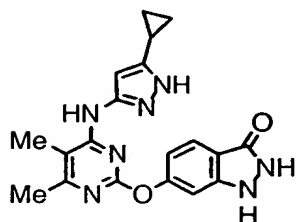
**II-(iii)-1**



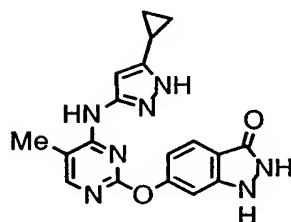
**II-(iii)-2**



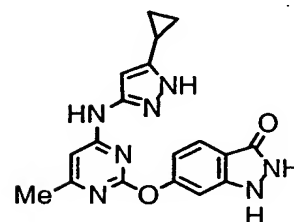
**II-(iii)-3**



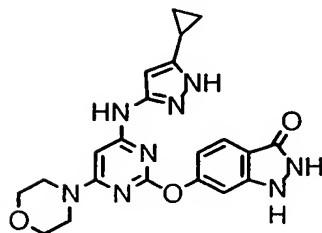
**II-(iii)-4**



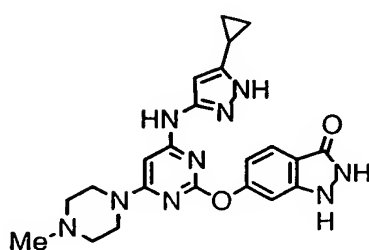
**II-(iii)-5**



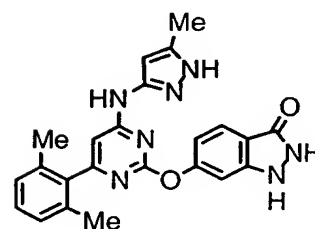
**II-(iii)-6**



**II-(iii)-7**

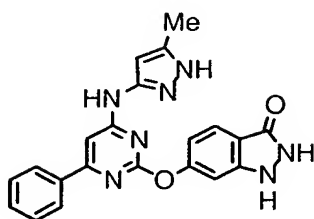


**II-(iii)-8**

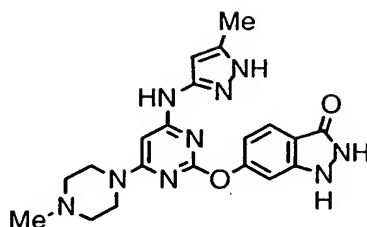


**II-(iii)-9**

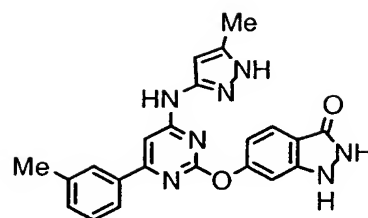
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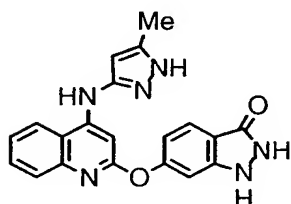
II-(iii)-10



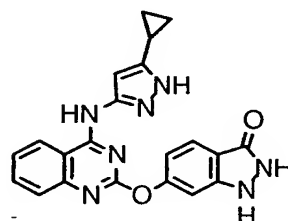
II-(iii)-11



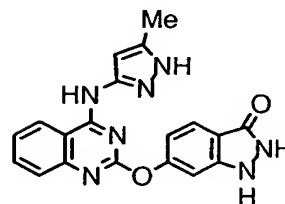
II-(iii)-12



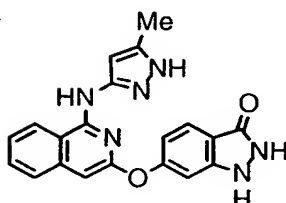
II-(iii)-13



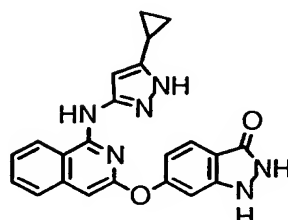
II-(iii)-14



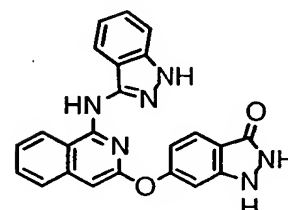
II-(iii)-15



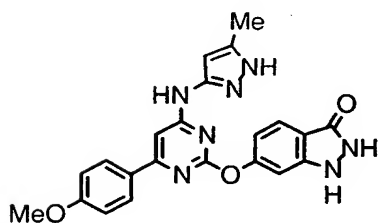
II-(iii)-16



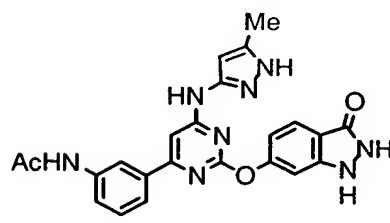
II-(iii)-17



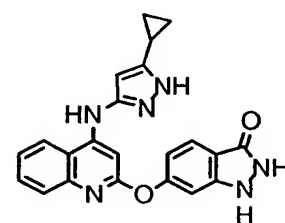
II-(iii)-18



II-(iii)-19

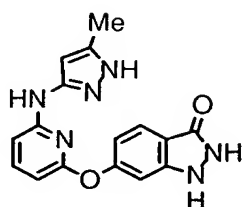


II-(iii)-20

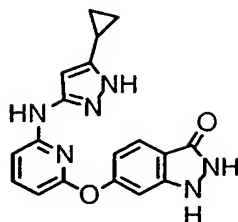


II-(iii)-20

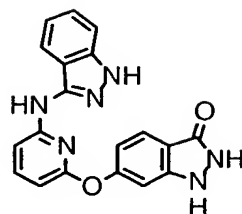
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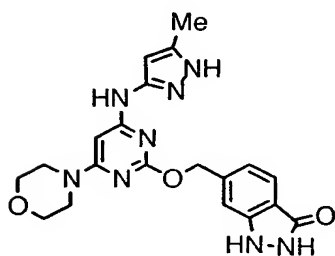
**II-(iii)-21**



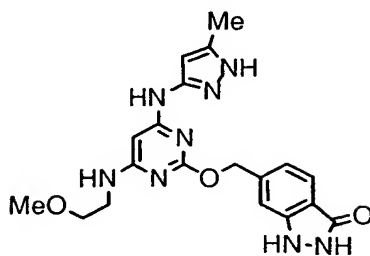
**II-(iii)-22**



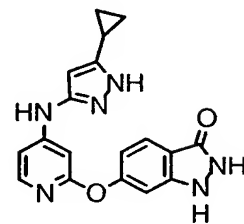
**II-(iii)-23**



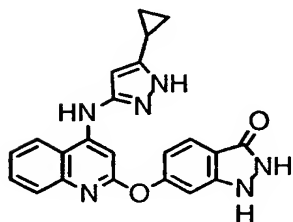
**II-(iii)-24**



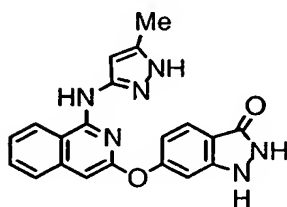
**II-(iii)-25**



**II-(iii)-26**



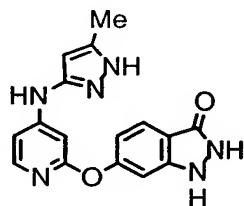
**II-(iii)-27**



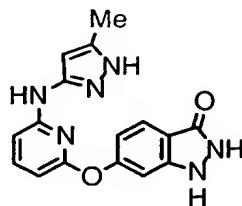
**II-(iii)-28**



**II-(iii)-29**

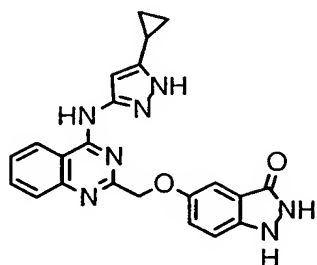


**II-(iii)-30**

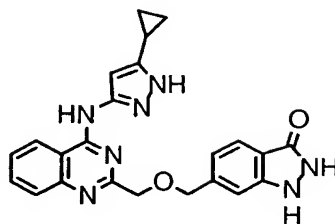


**II-(iii)-31**

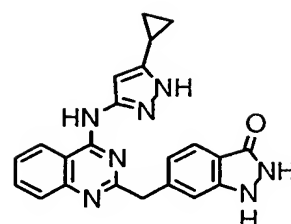
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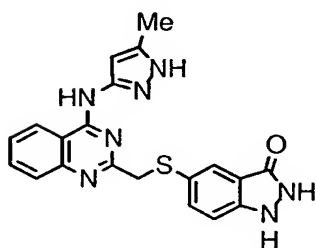
II-(iv)-1



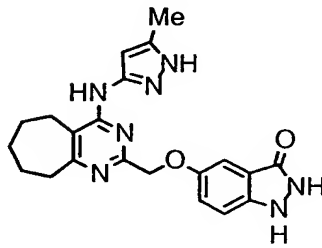
II-(iv)-2



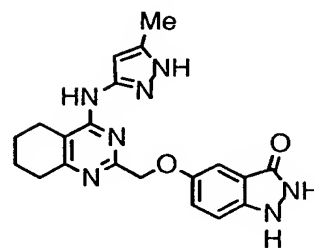
II-(iv)-3



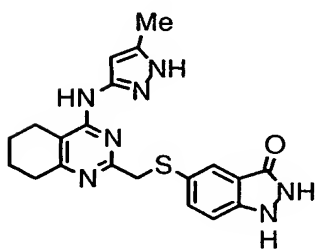
II-(iv)-4



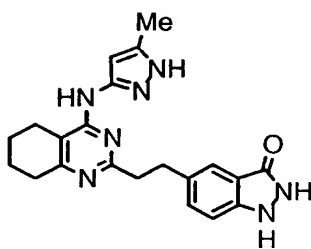
II-(iv)-5



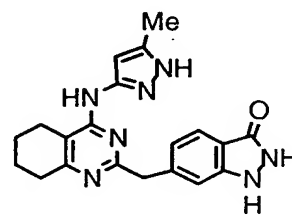
II-(iv)-6



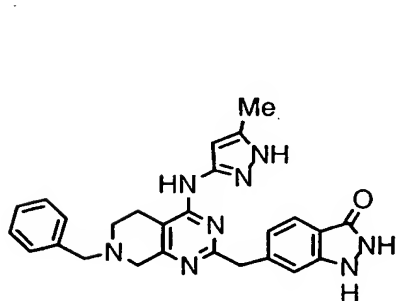
II-(iv)-7



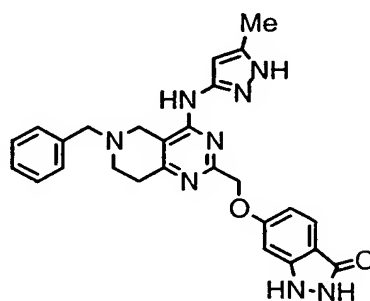
II-(iv)-8



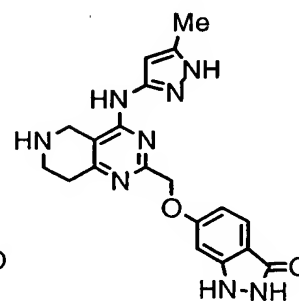
II-(iv)-9



II-(iv)-10

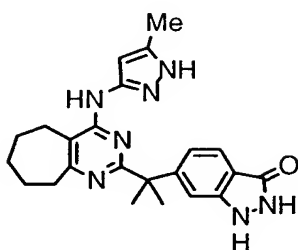


II-(iv)-11

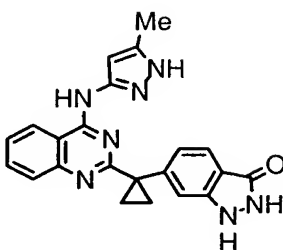


II-(iv)-12

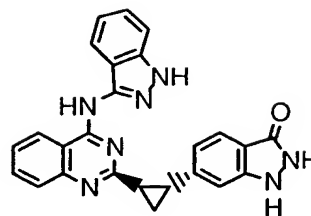
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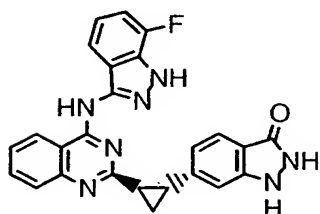
II-(iv)-13



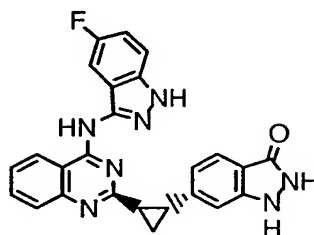
II-(iv)-14



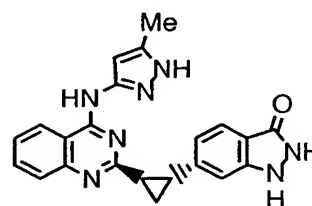
II-(iv)-15



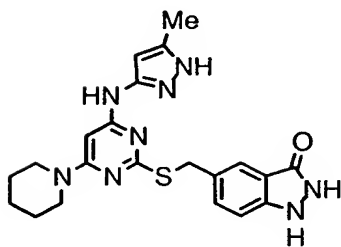
II-(iv)-16



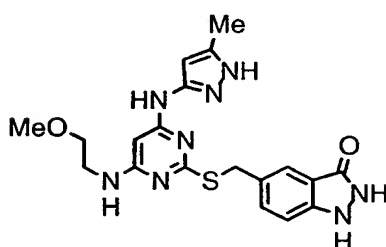
II-(iv)-17



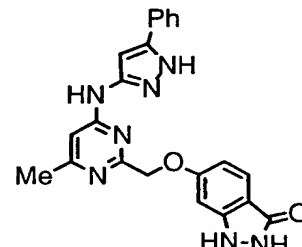
II-(iv)-18



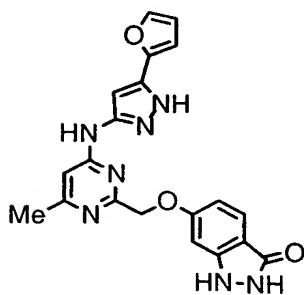
II-(iv)-19



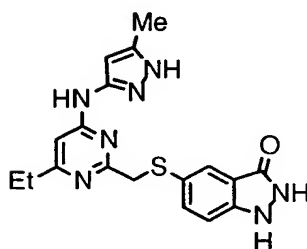
II-(iv)-20



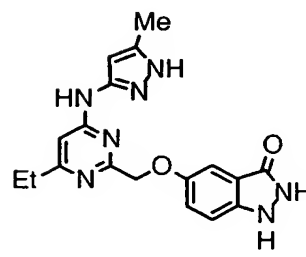
II-(iv)-21



II-(iv)-22

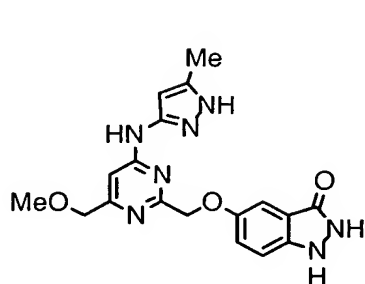


II-(iv)-23

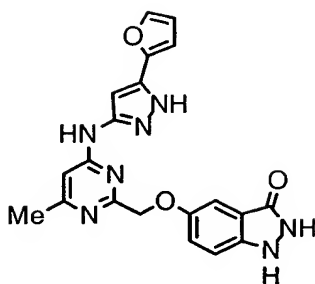


II-(iv)-24

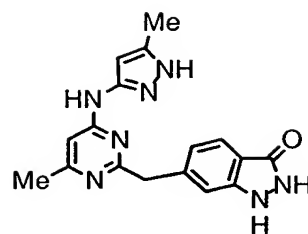
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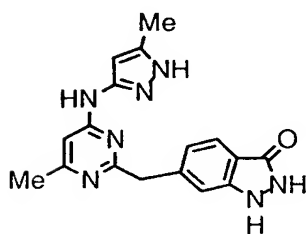
II-(iv)-25



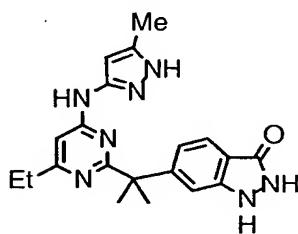
II-(iv)-26



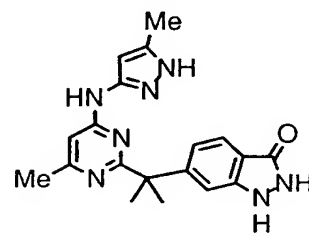
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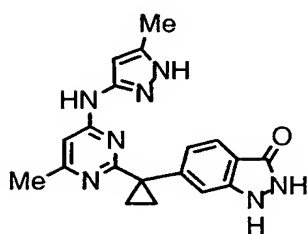
II-(iv)-28



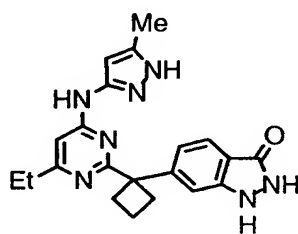
II-(iv)-29



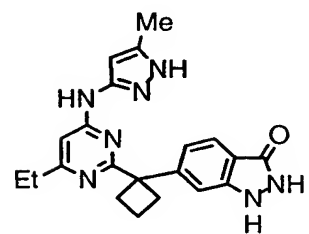
II-(iv)-30



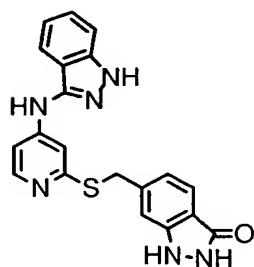
II-(iv)-31



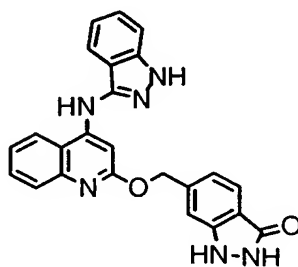
II-(iv)-32



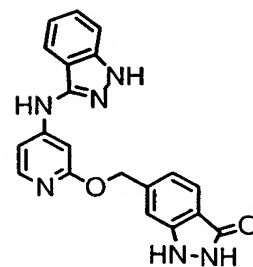
II-(iv)-33



II-(iv)-34



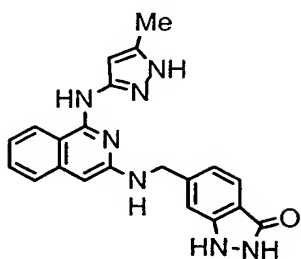
II-(iv)-35



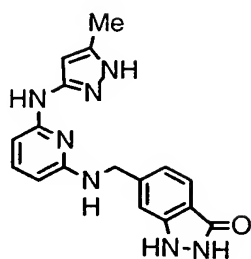
II-(iv)-36



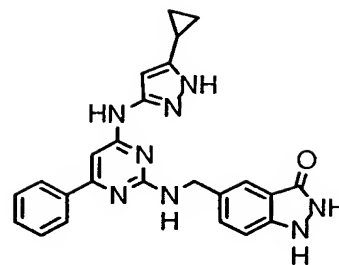
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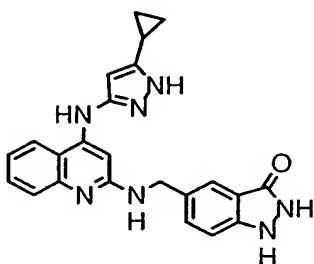
**II-(iv)-37**



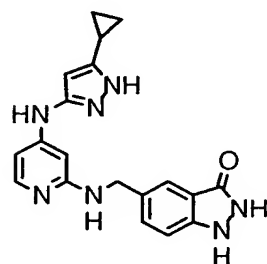
**II-(iv)-38**



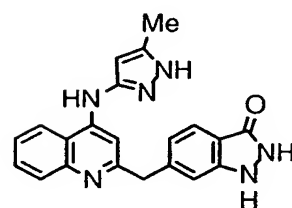
**II-(iv)-39**



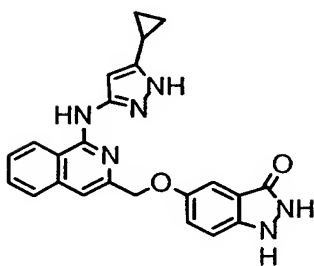
**II-(iv)-40**



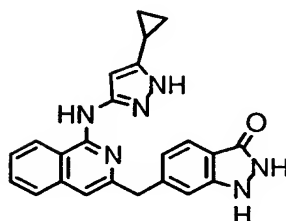
**II-(iv)-41**



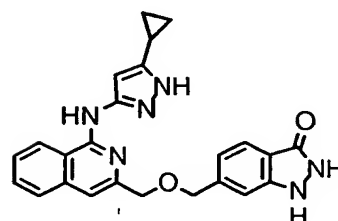
**II-(iv)-42**



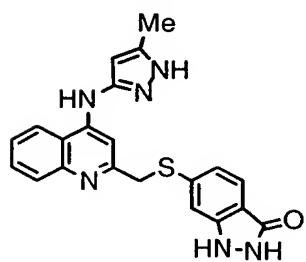
**II-(iv)-43**



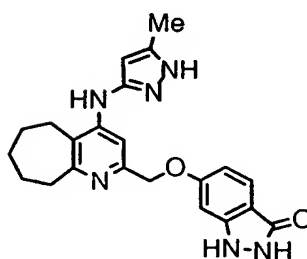
**II-(iv)-44**



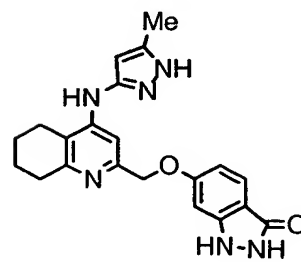
**II-(iv)-45**



**II-(iv)-46**

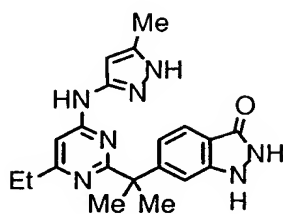


**II-(iv)-47**

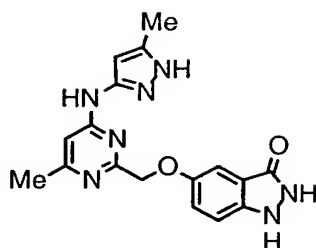


**II-(iv)-48**

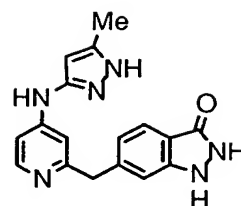
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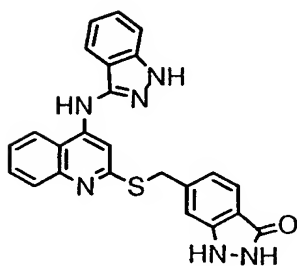
**II-(iv)-49**



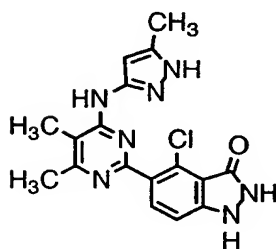
**II-(iv)-50**



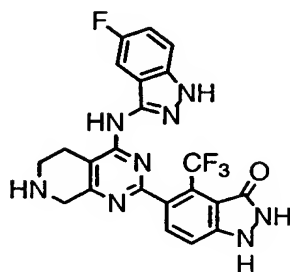
**II-(iv)-51**



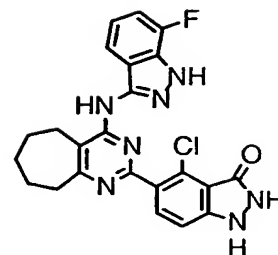
**II-(iv)-52**



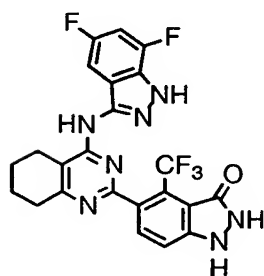
**II-(v)-1**



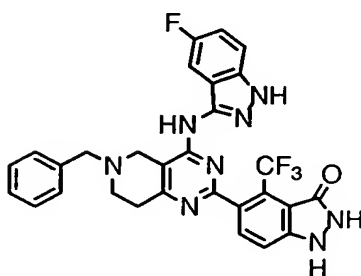
**II-(v)-2**



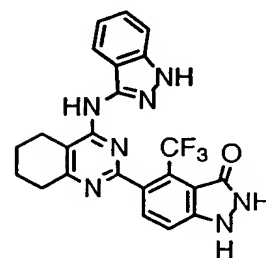
**II-(v)-3**



**II-(v)-4**

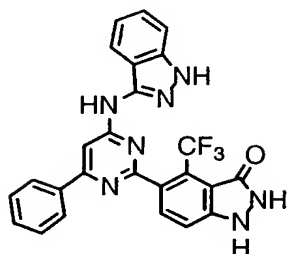


**II-(v)-5**

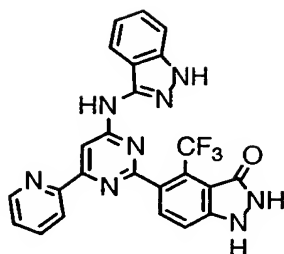


**II-(v)-6**

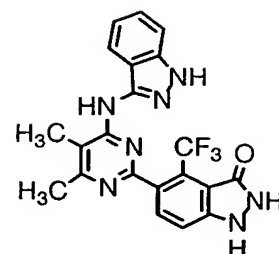
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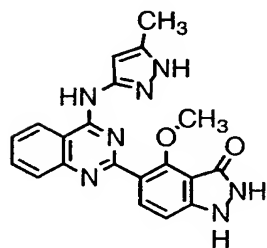
II-(v)-7



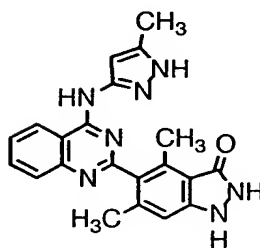
II-(v)-8



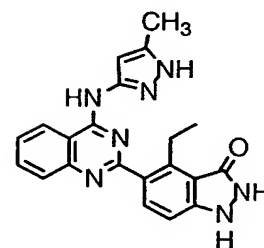
II-(v)-9



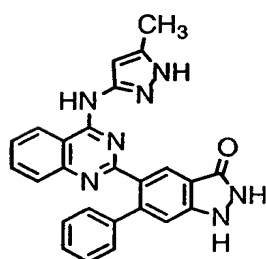
II-(v)-10



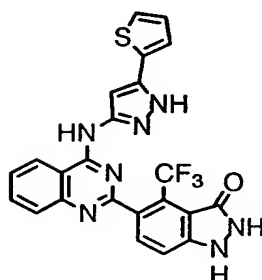
II-(v)-11



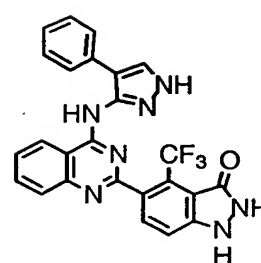
II-(v)-12



II-(v)-13

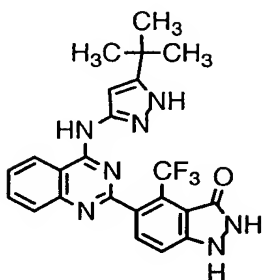


II-(v)-14

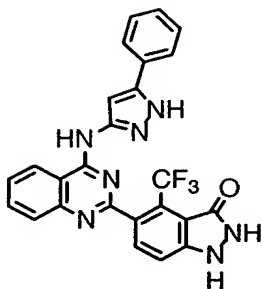


II-(v)-15

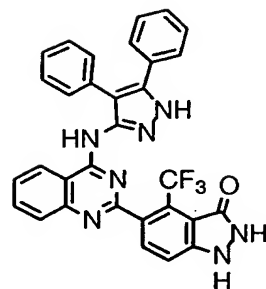
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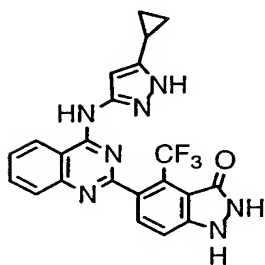
II-(v)-16



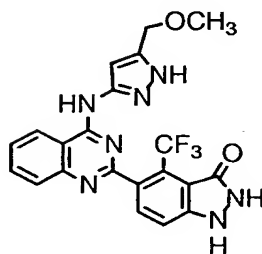
II-(v)-17



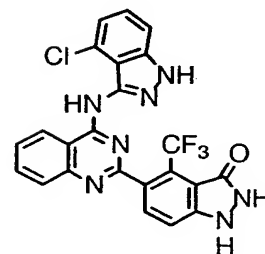
II-(v)-18



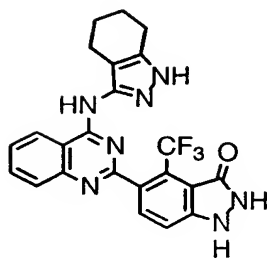
II-(v)-19



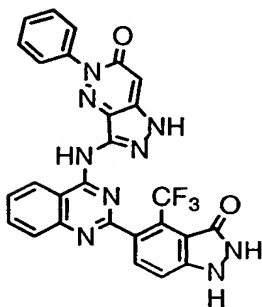
II-(v)-20



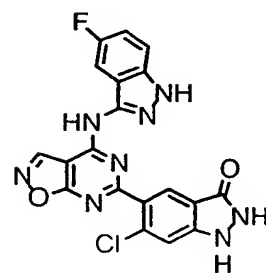
II-(v)-21



II-(v)-22

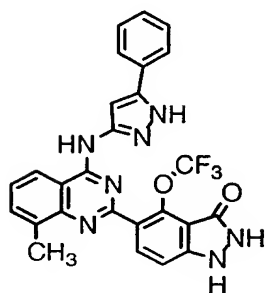


II-(v)-23

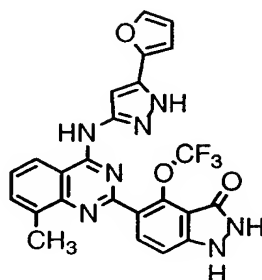


II-(v)-24

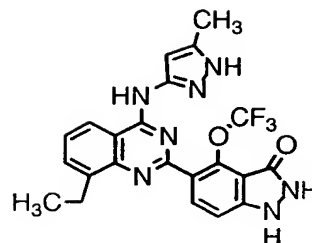
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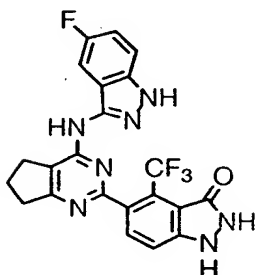
**II-(v)-25**



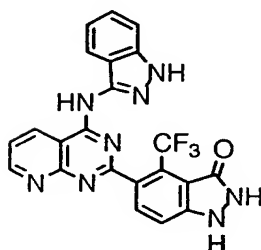
**II-(v)-26**



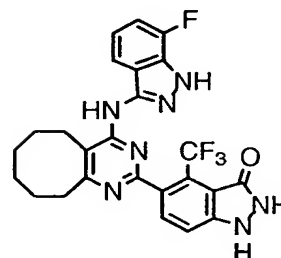
**II-(v)-27**



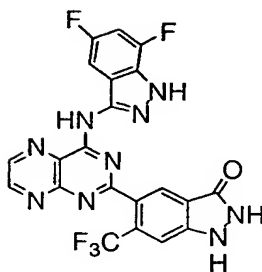
**II-(v)-28**



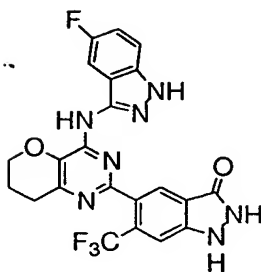
**II-(v)-29**



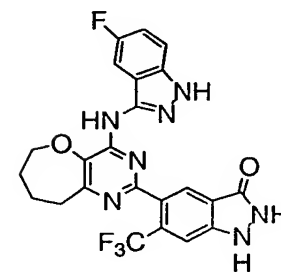
**II-(v)-30**



**II-(v)-31**

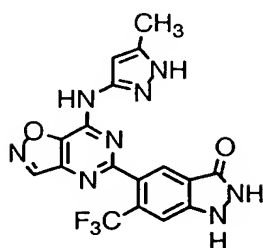


**II-(v)-32**

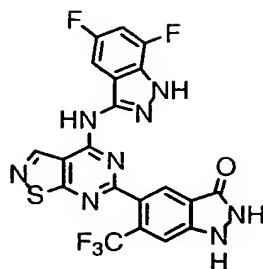


**II-(v)-33**

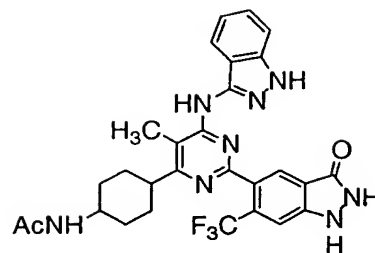
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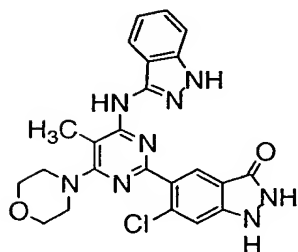
II-(v)-34



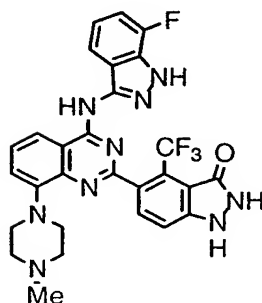
II-(v)-35



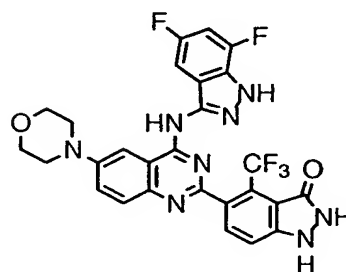
II-(v)-36



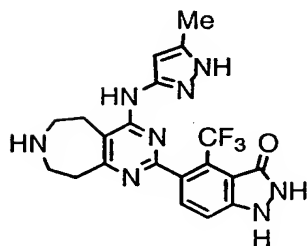
II-(v)-37



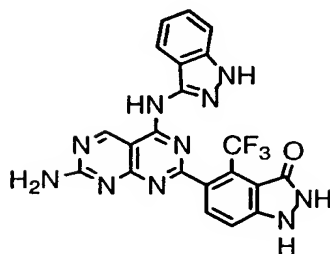
II-(v)-38



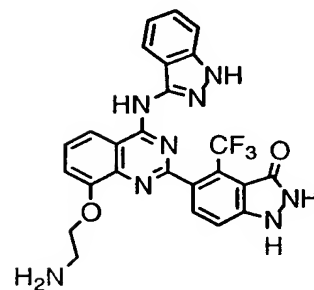
II-(v)-39



II-(v)-40

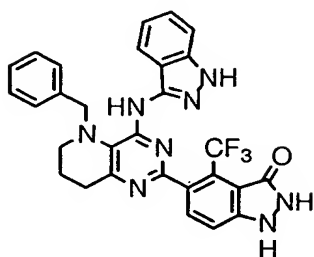


II-(v)-41

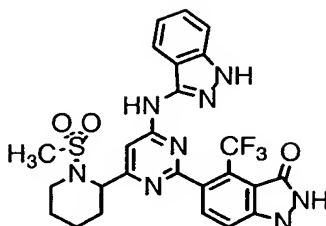


II-(v)-42

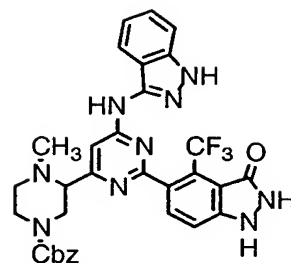
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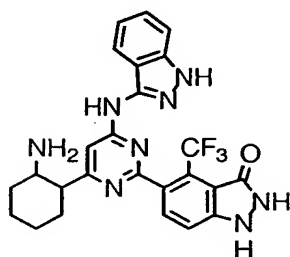
II-(v)-43



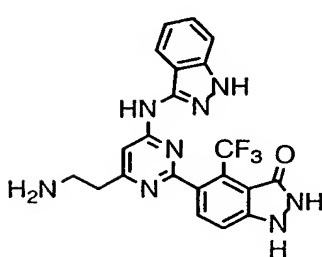
II-(v)-44



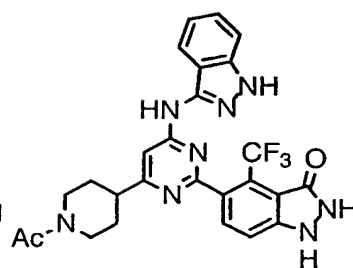
II-(v)-45



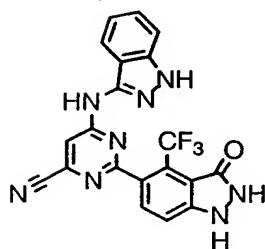
II-(v)-46



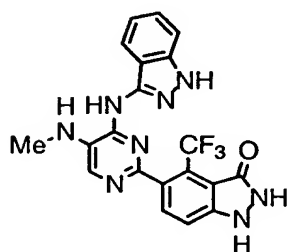
II-(v)-47



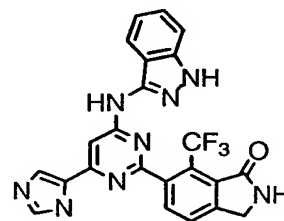
II-(v)-48



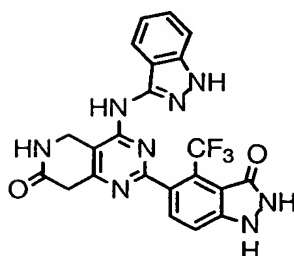
II-(v)-49



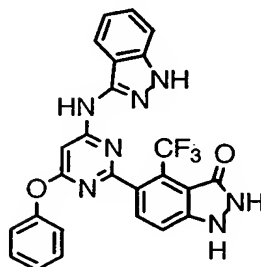
II-(v)-50



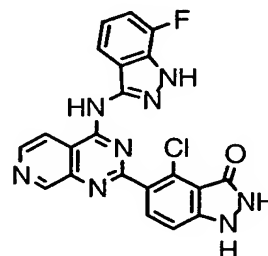
II-(v)-51



II-(v)-52

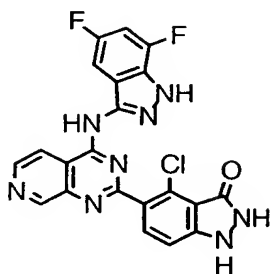


II-(v)-53

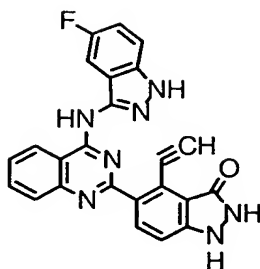


II-(v)-54

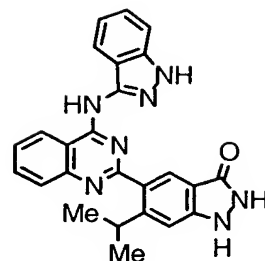
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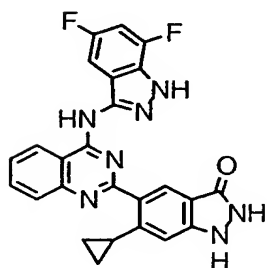
II-(v)-55



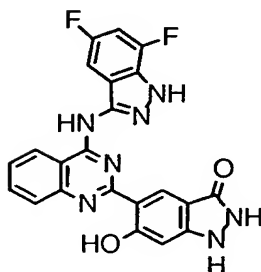
II-(v)-56



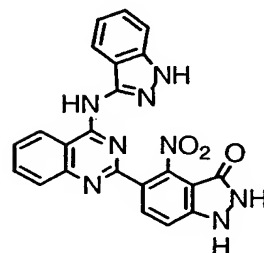
II-(v)-57



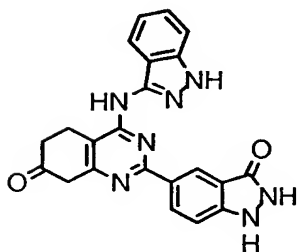
II-(v)-58



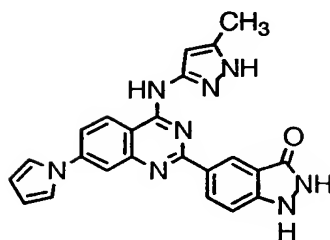
II-(v)-59



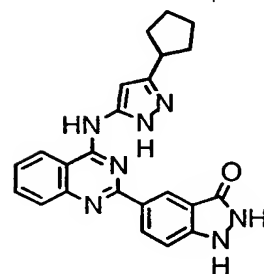
II-(v)-60



II-(v)-61



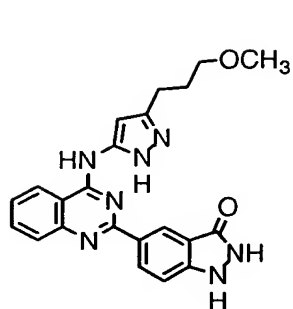
II-(v)-62



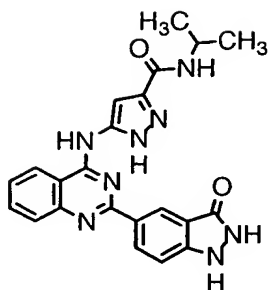
II-(v)-63



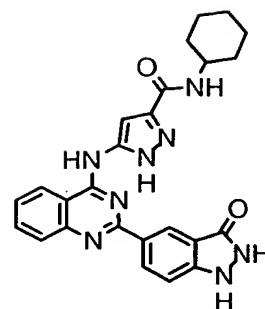
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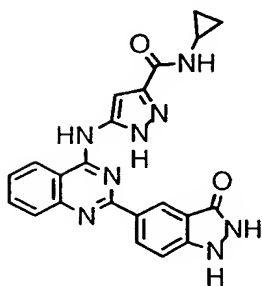
II-(v)-64



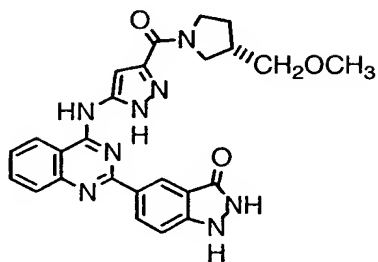
II-(v)-65



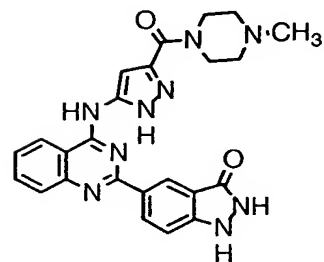
II-(v)-66



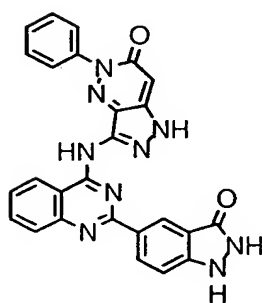
II-(v)-67



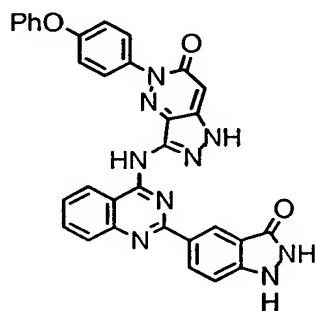
II-(v)-68



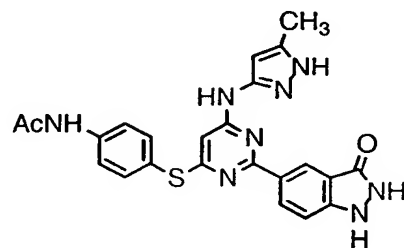
II-(v)-69



II-(v)-70

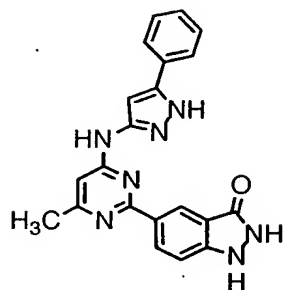


II-(v)-71

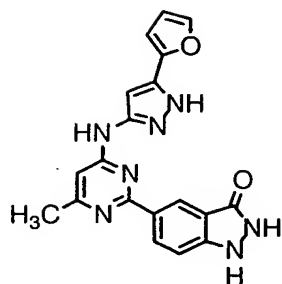


II-(v)-72

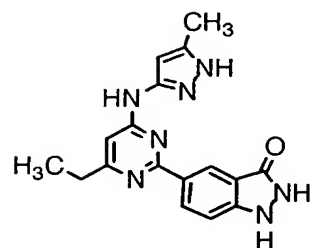
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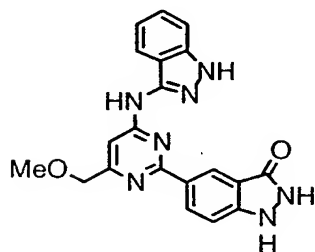
II-(v)-73



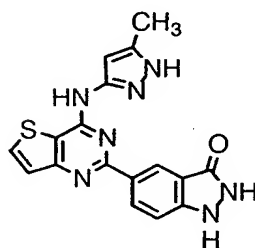
II-(v)-74



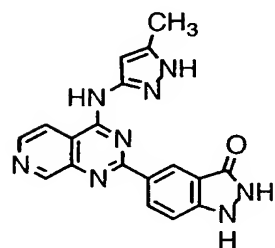
II-(v)-75



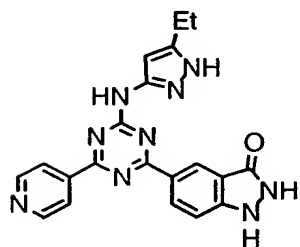
II-(v)-76



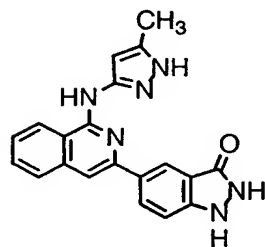
II-(v)-77



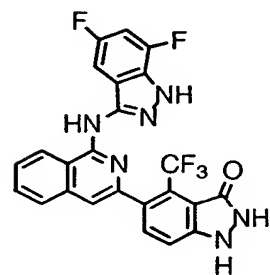
II-(v)-78



II-(v)-79

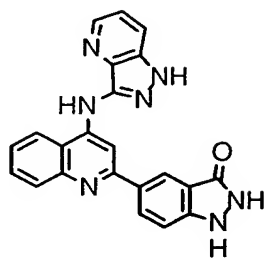


II-(v)-80

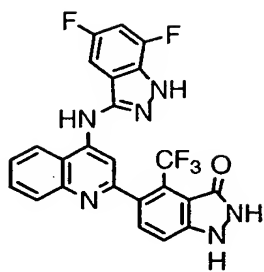


II-(v)-81

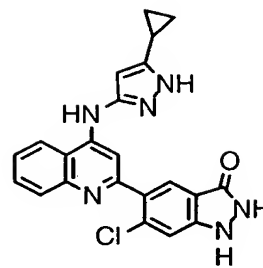
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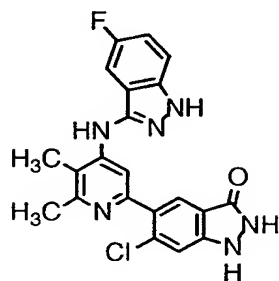
II-(v)-82



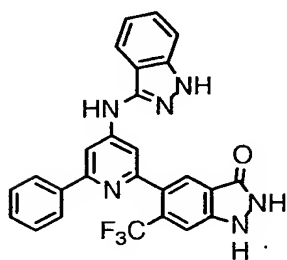
II-(v)-83



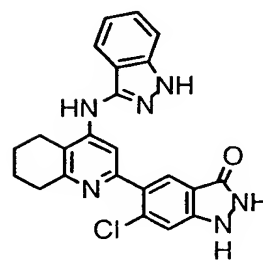
II-(v)-84



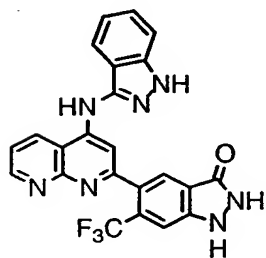
II-(v)-85



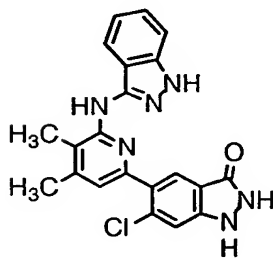
II-(v)-86



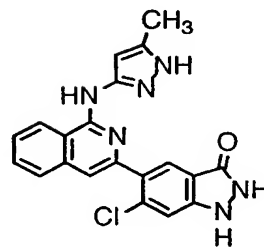
II-(v)-87



II-(v)-88

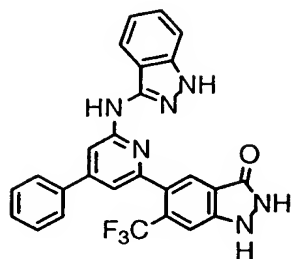


II-(v)-89

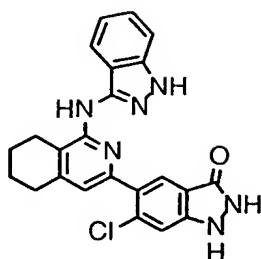


II-(v)-90

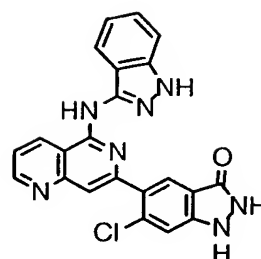
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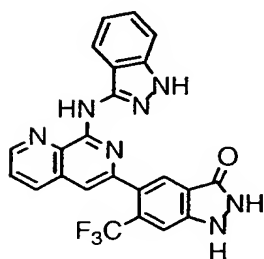
II-(v)-91



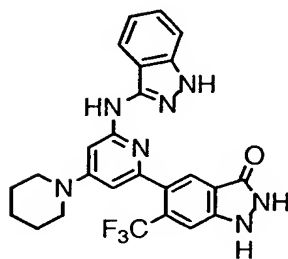
II-(v)-92



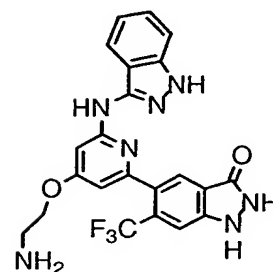
II-(v)-93



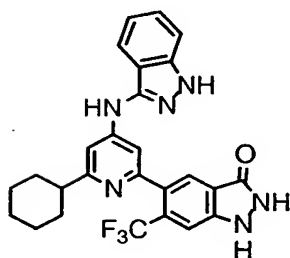
II-(v)-94



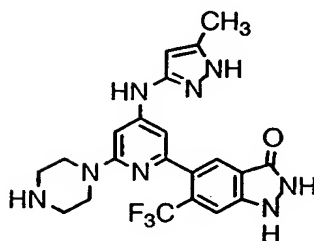
II-(v)-95



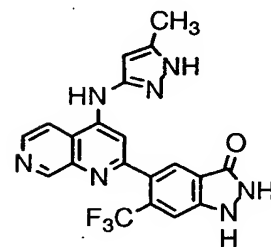
II-(v)-96



II-(v)-97

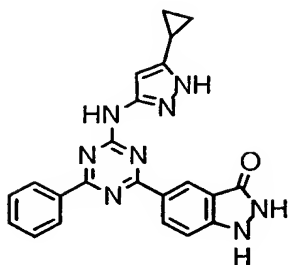


II-(v)-98

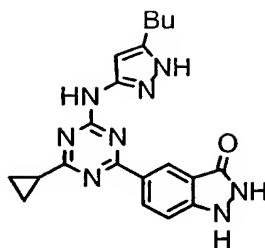


II-(v)-99

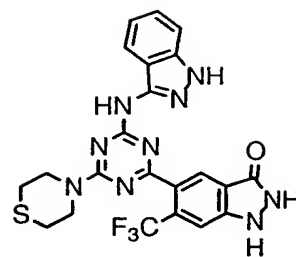
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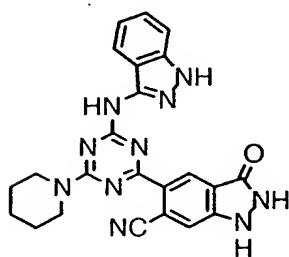
II-(v)-100



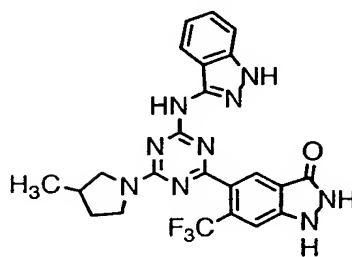
II-(v)-101



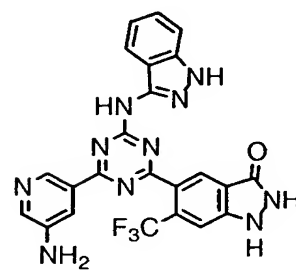
II-(v)-102



II-(v)-103



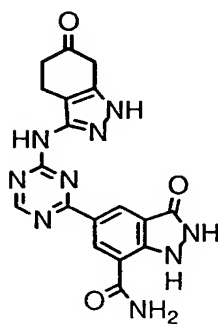
II-(v)-104



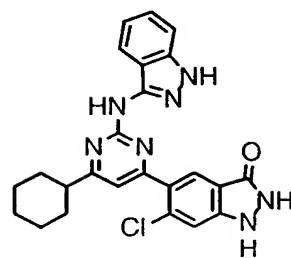
II-(v)-105



II-(v)-106

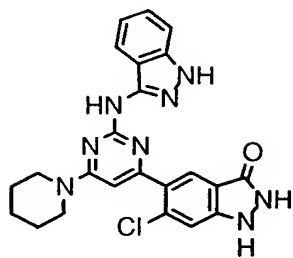


II-(v)-107

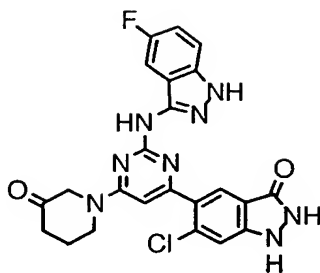


II-(v)-108

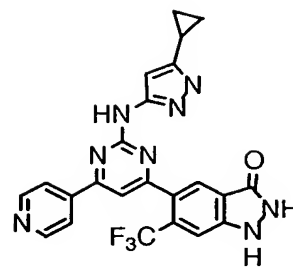
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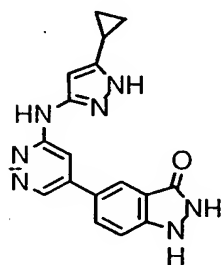
II-(v)-100



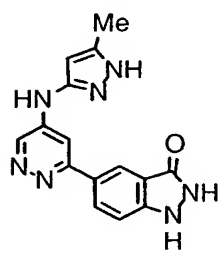
II-(v)-110



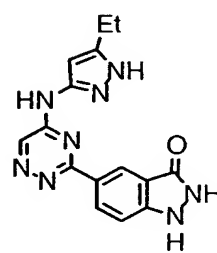
II-(v)-111



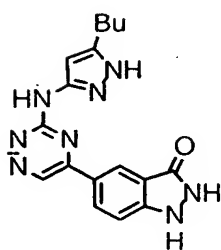
II-(v)-112



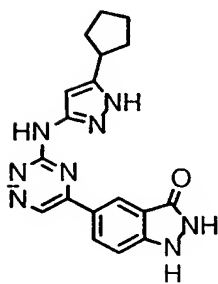
II-(v)-113



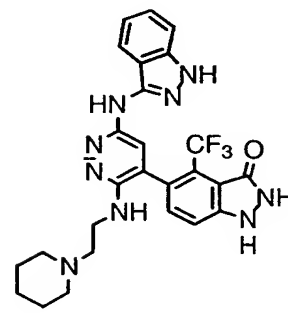
II-(v)-114



II-(v)-115

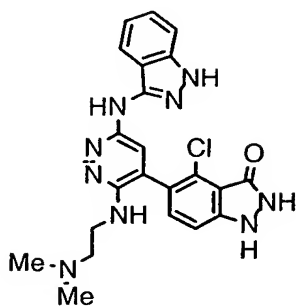


II-(v)-116

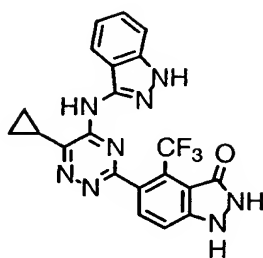


II-(v)-117

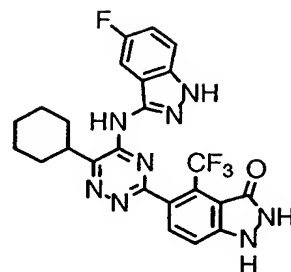
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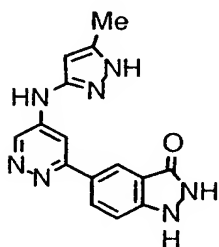
**II-(v)-118**



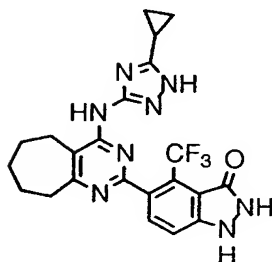
**II-(v)-119**



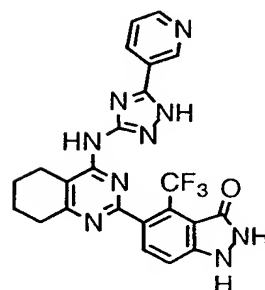
**II-(v)-120**



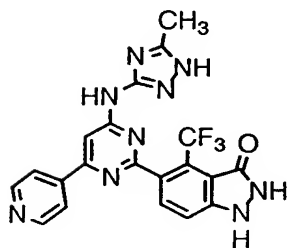
**II-(v)-121**



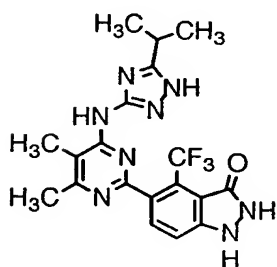
**II-(v)-122**



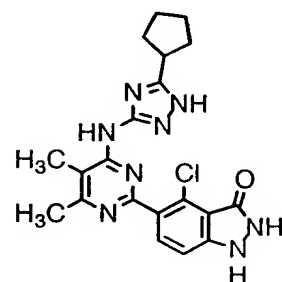
**II-(v)-123**



**II-(v)-124**

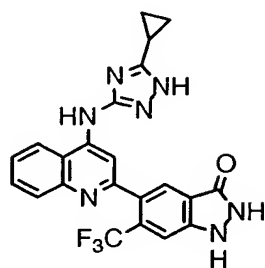


**II-(v)-125**

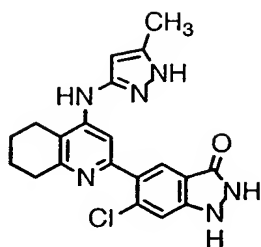


**II-(v)-126**

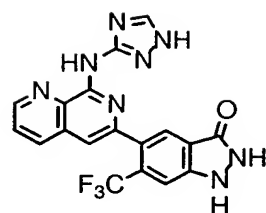
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II-(v)-127



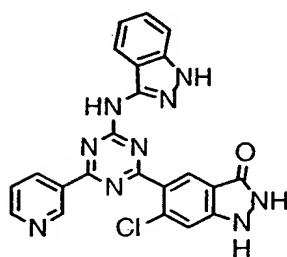
II-(v)-128



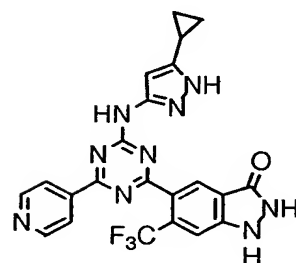
II-(v)-129



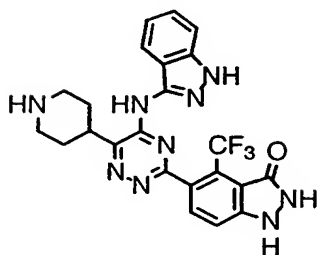
II-(v)-130



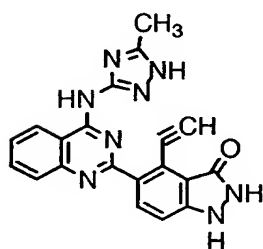
II-(v)-131



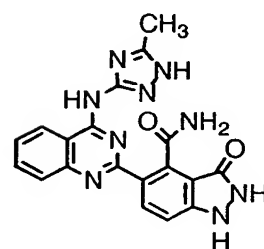
II-(v)-132



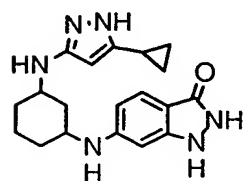
II-(v)-133



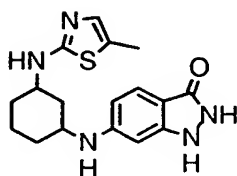
II-(v)-134



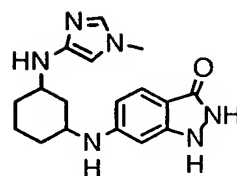
II-(v)-135



III-(i)-1



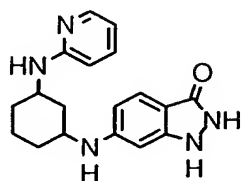
III-(i)-2



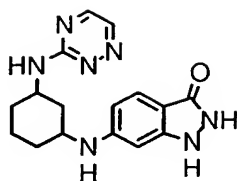
III-(i)-3



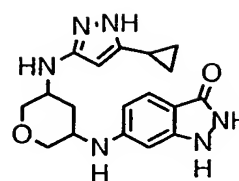
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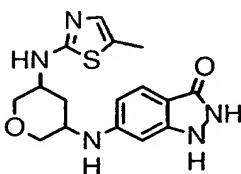
**III-(i)-4**



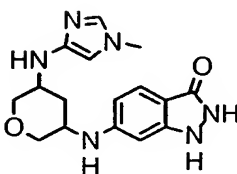
**III-(i)-5**



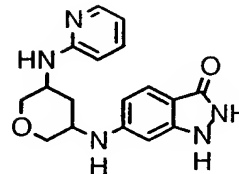
**III-(i)-6**



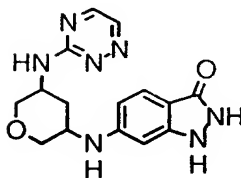
**III-(i)-7**



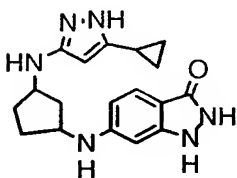
**III-(i)-8**



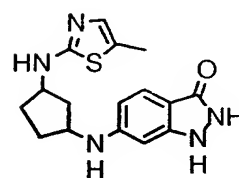
**III-(i)-9**



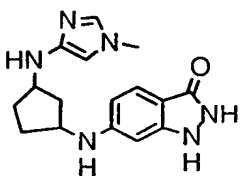
**III-(i)-10**



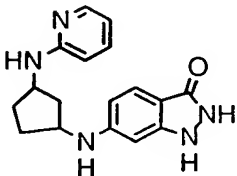
**III-(i)-11**



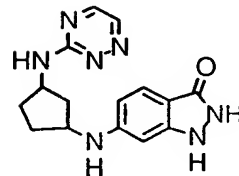
**III-(i)-12**



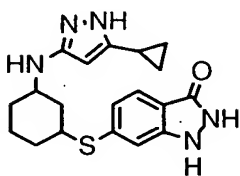
**III-(i)-13**



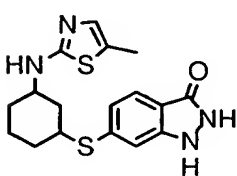
**III-(i)-14**



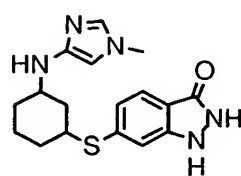
**III-(i)-15**



**III-(ii)-1**

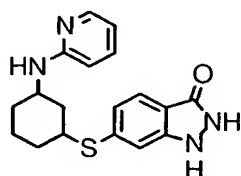


**III-(ii)-2**

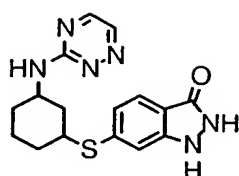


**III-(ii)-3**

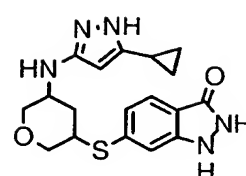
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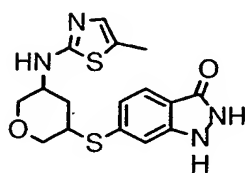
III-(ii)-4



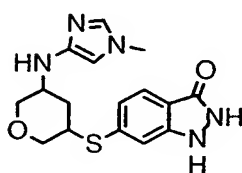
III-(ii)-5



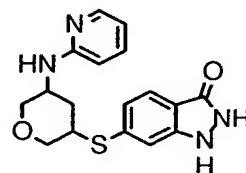
III-(ii)-6



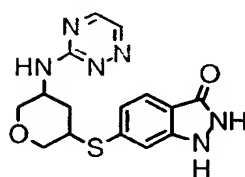
III-(ii)-7



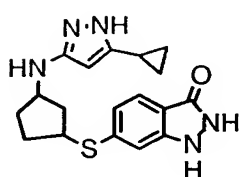
III-(ii)-8



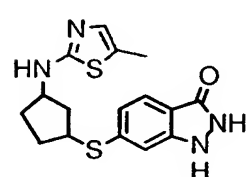
III-(ii)-9



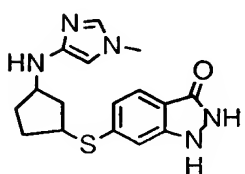
III-(ii)-10



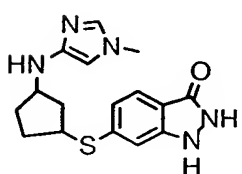
III-(ii)-11



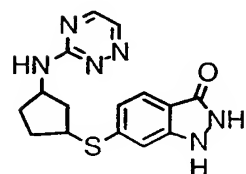
III-(ii)-12



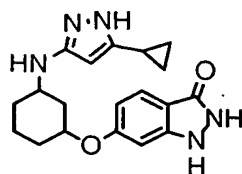
III-(ii)-13



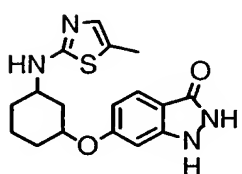
III-(ii)-14



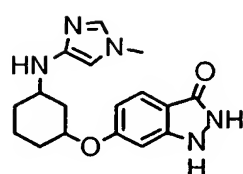
III-(ii)-15



III-(iii)-1

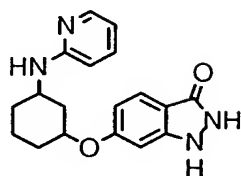


III-(iii)-2

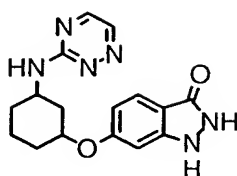


III-(iii)-3

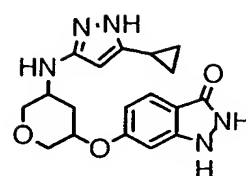
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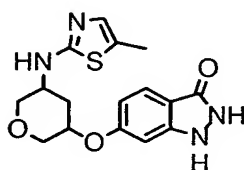
III-(iii)-4



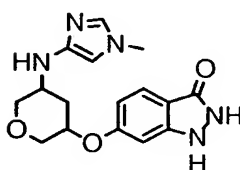
III-(iii)-5



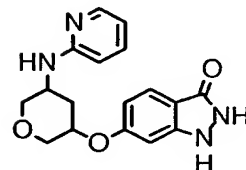
III-(iii)-6



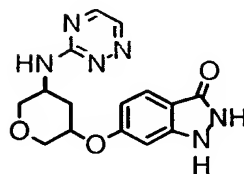
III-(iii)-7



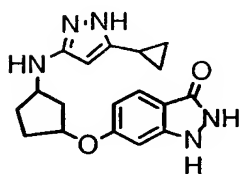
III-(iii)-8



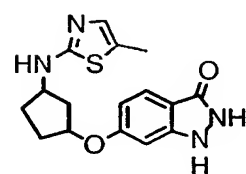
III-(iii)-9



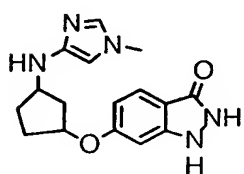
III-(iii)-10



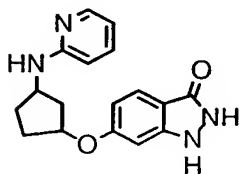
III-(iii)-11



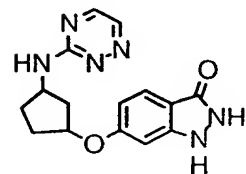
III-(iii)-12



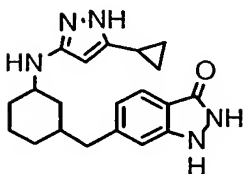
III-(iii)-13



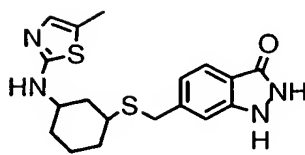
III-(iii)-14



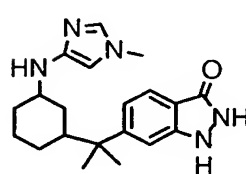
III-(iii)-15



III-(iv)-1

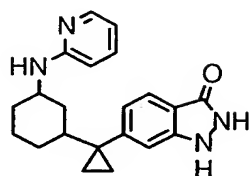


III-(iv)-2

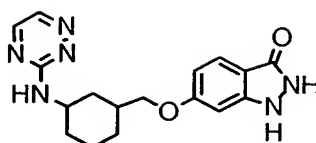


III-(iv)-3

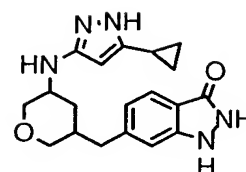
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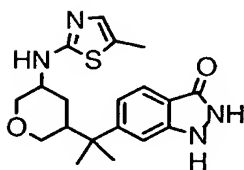
III-(iv)-4



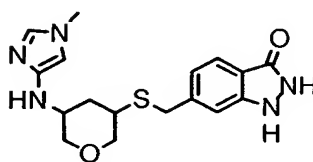
III-(iv)-5



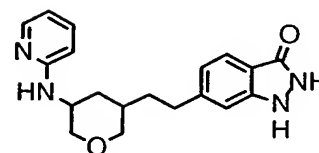
III-(iv)-6



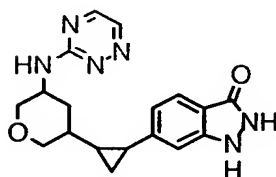
III-(iv)-7



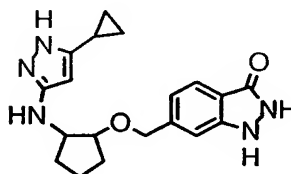
III-(iv)-8



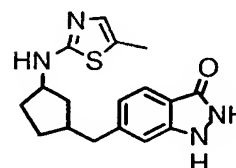
III-(iv)-9



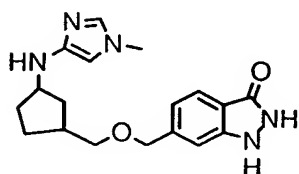
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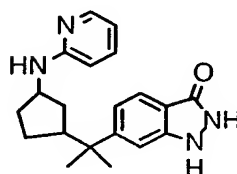
III-(iv)-11



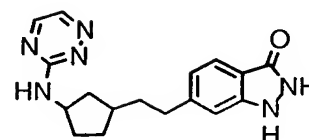
III-(iv)-12



III-(iv)-13

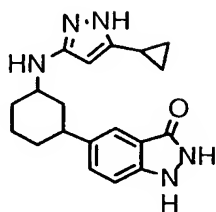


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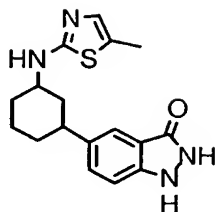


III-(iv)-15

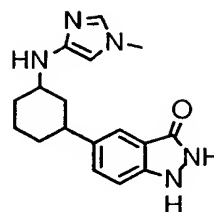
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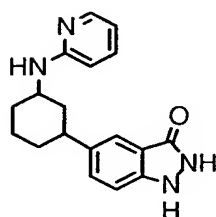
III-(v)-1



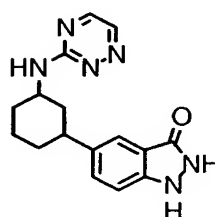
III-(v)-2



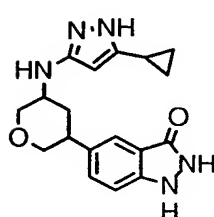
III-(v)-3



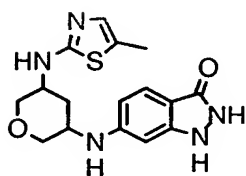
III-(v)-4



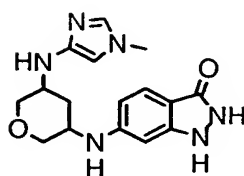
III-(v)-5



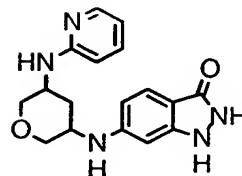
III-(v)-6



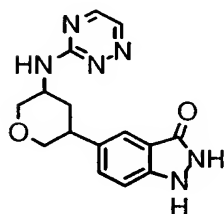
III-(v)-7



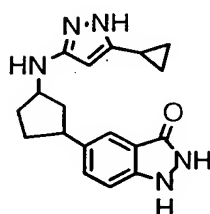
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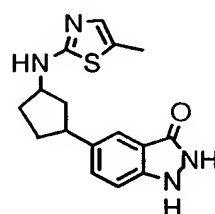
III-(v)-9



III-(v)-10

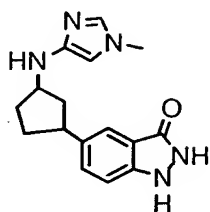


III-(v)-11

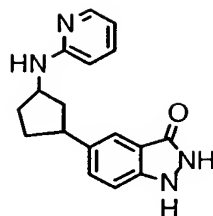


III-(v)-12

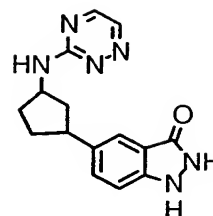
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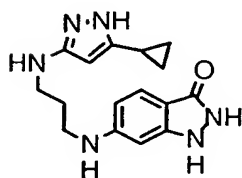
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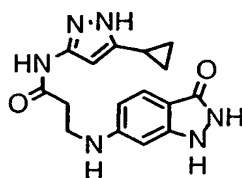
III-(v)-14



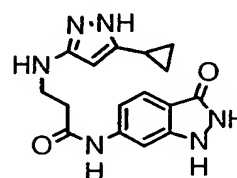
III-(v)-15



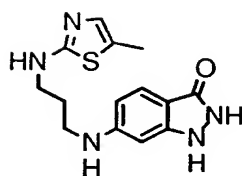
IV-1



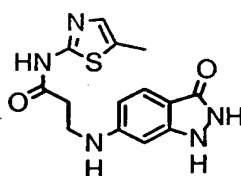
IV-2



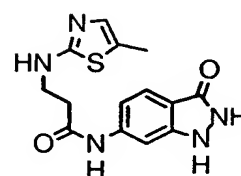
IV-3



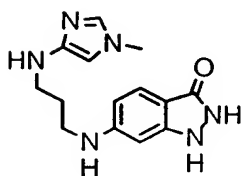
IV-4



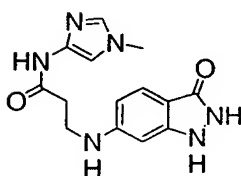
IV-5



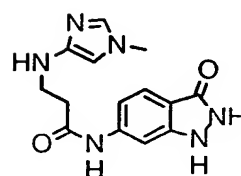
IV-6



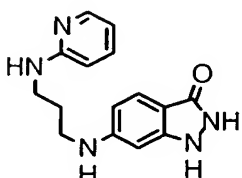
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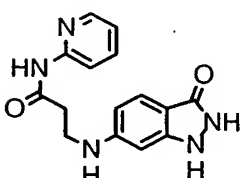
IV-8



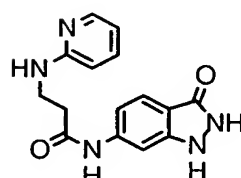
IV-9



IV-10

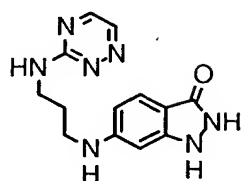


IV-11

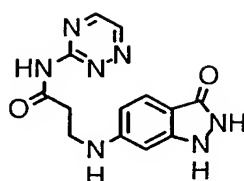


IV-12

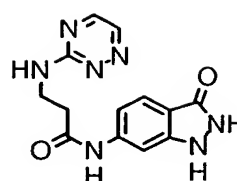
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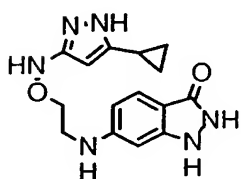
IV-13



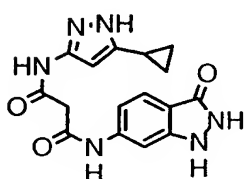
IV-14



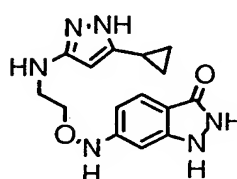
IV-15



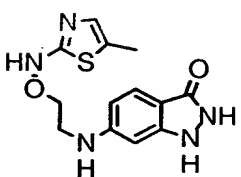
IV-16



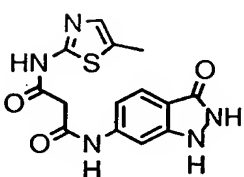
IV-17



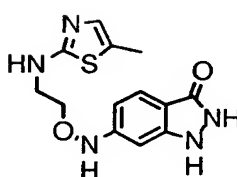
IV-18



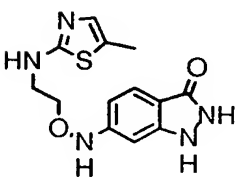
IV-19



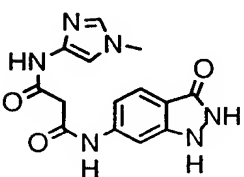
IV-20



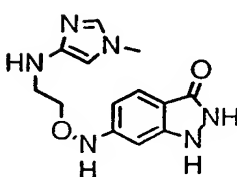
IV-21



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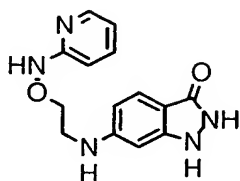


IV-23

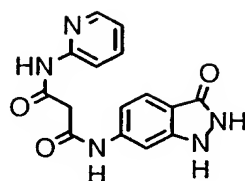


IV-24

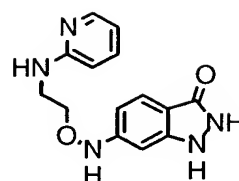
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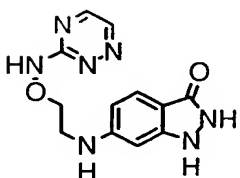
**IV-25**



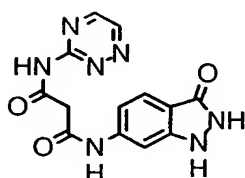
**IV-26**



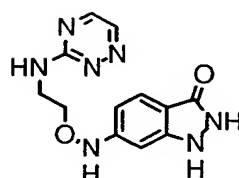
**IV-27**



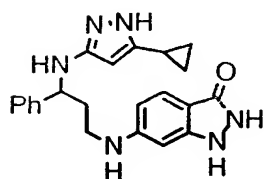
**IV-28**



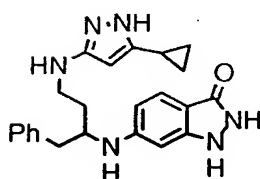
**IV-29**



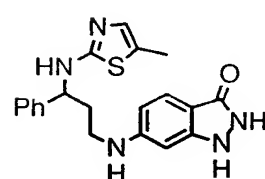
**IV-30**



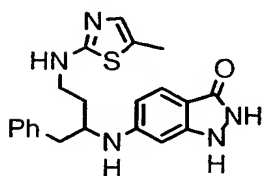
**IV-31**



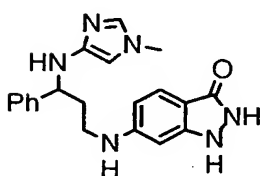
**IV-32**



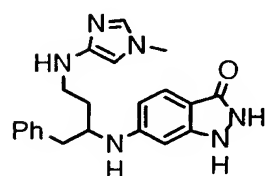
**IV-33**



**IV-34**



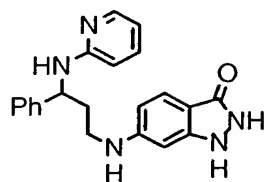
**IV-35**



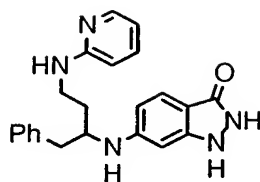
**IV-36**



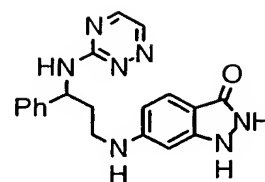
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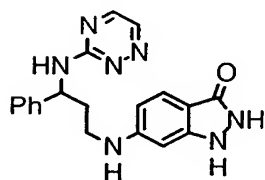
IV-37



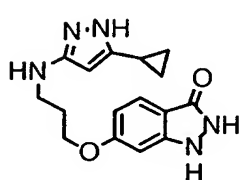
IV-38



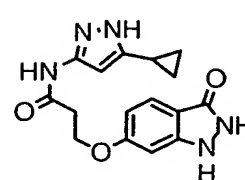
IV-39



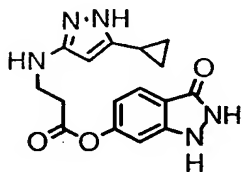
IV-40



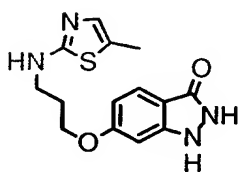
IV-41



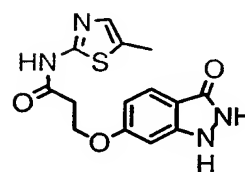
IV-42



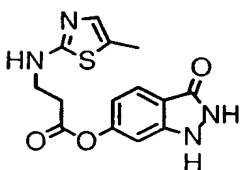
IV-43



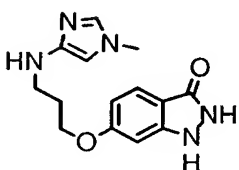
IV-44



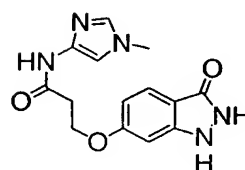
IV-45



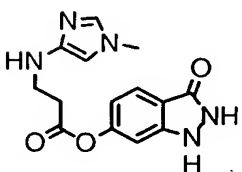
IV-46



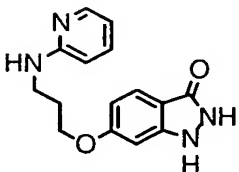
IV-47



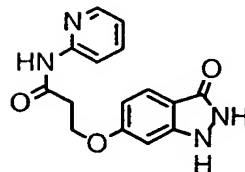
IV-48



IV-49

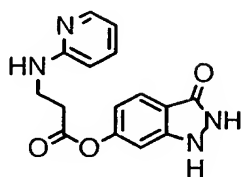


IV-50

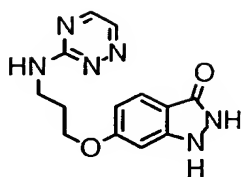


IV-51

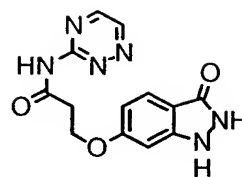
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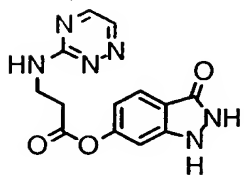
**IV-52**



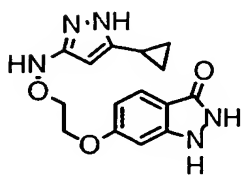
**IV-53**



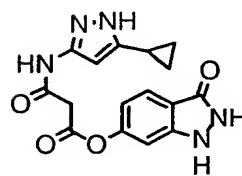
**IV-54**



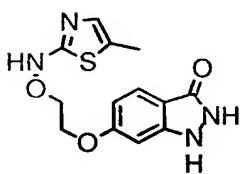
**IV-55**



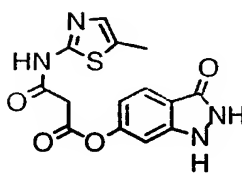
**IV-56**



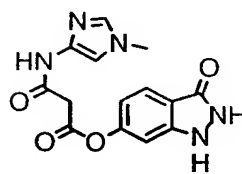
**IV-57**



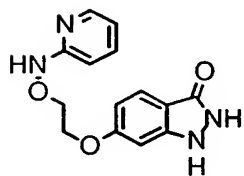
**IV-58**



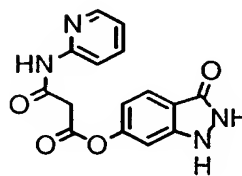
**IV-59**



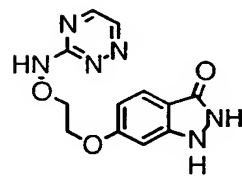
**IV-60**



**IV-61**

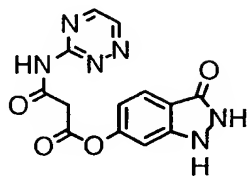


**IV-62**

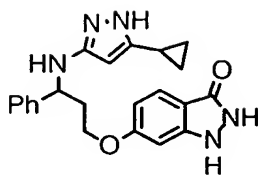


**IV-63**

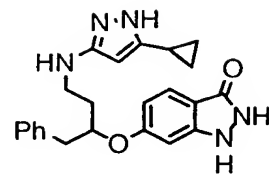
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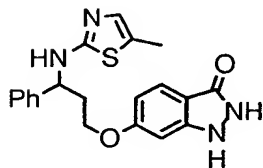
**IV-64**



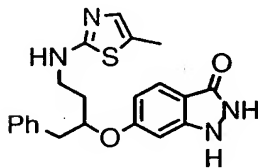
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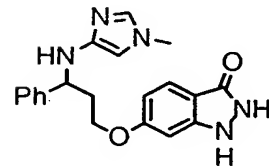
**IV-66**



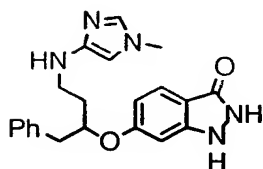
**IV-67**



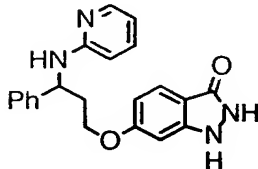
**IV-68**



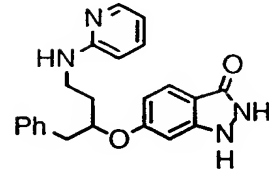
**IV-69**



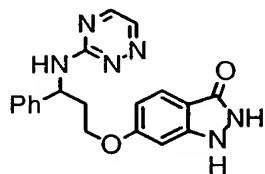
**IV-70**



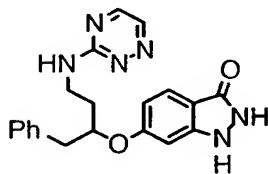
**IV-71**



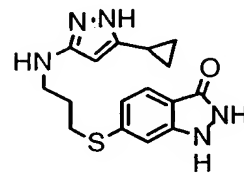
**IV-72**



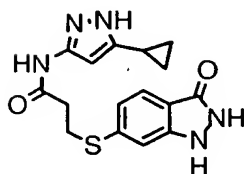
**IV-73**



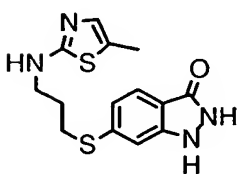
**IV-74**



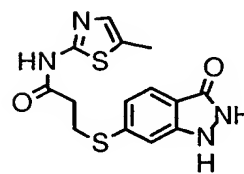
**IV-75**



**IV-76**

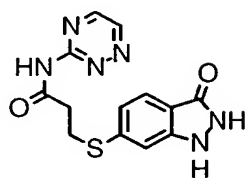


**IV-77**

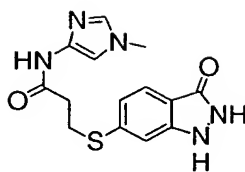


**IV-78**

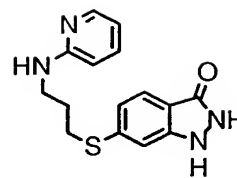
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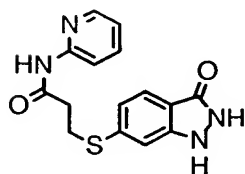
IV-79



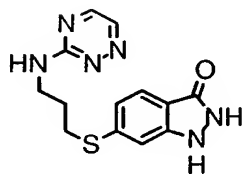
IV-80



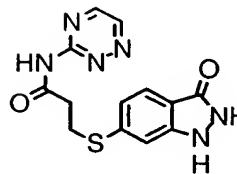
IV-81



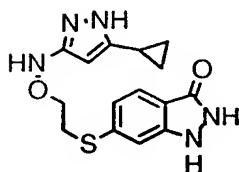
IV-82



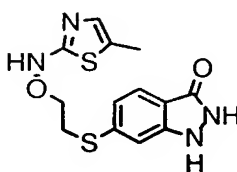
IV-83



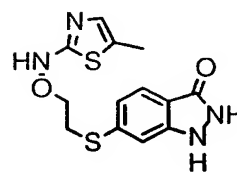
IV-84



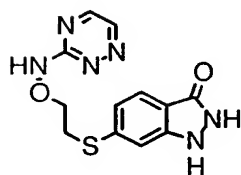
IV-85



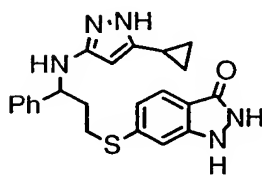
IV-86



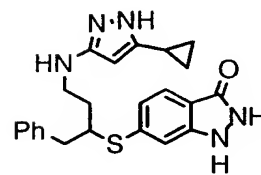
IV-87



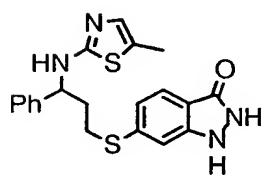
IV-88



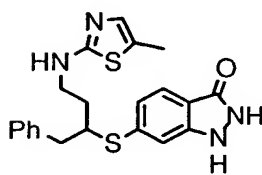
IV-89



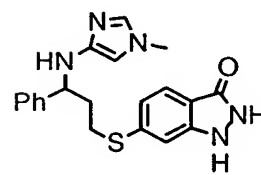
IV-90



IV-91

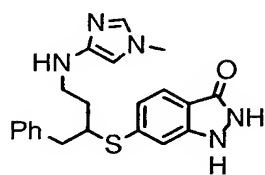


IV-92

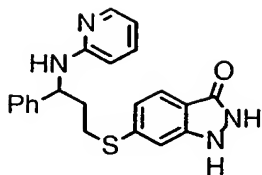


IV-93

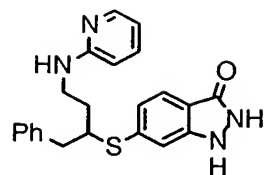
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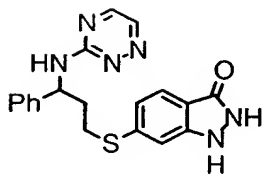
**IV-94**



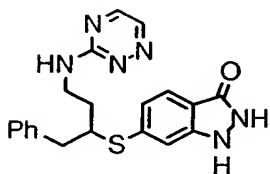
**IV-95**



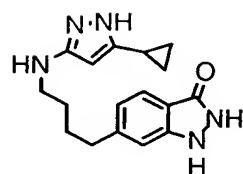
**IV-96**



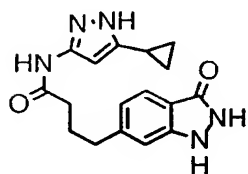
**IV-97**



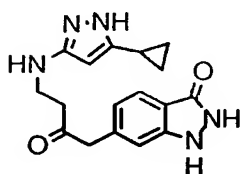
**IV-98**



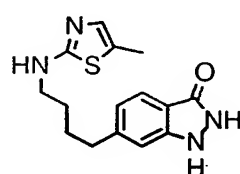
**IV-99**



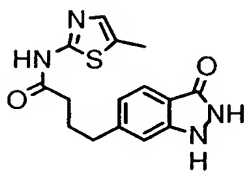
**IV-100**



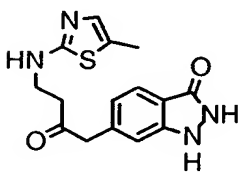
**IV-101**



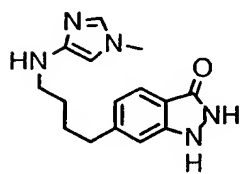
**IV-102**



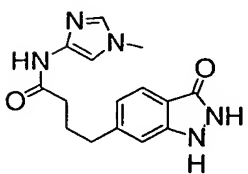
**IV-103**



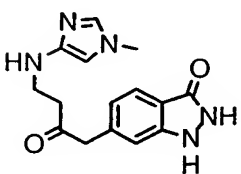
**IV-104**



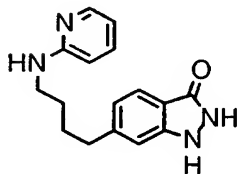
**IV-105**



**IV-106**

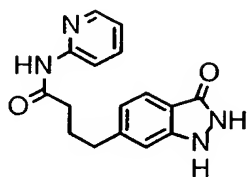


**IV-107**

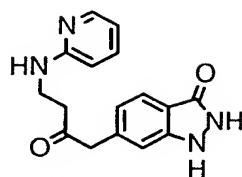


**IV-108**

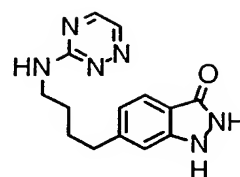
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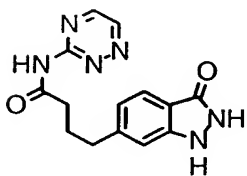
IV-109



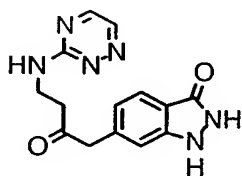
IV-110



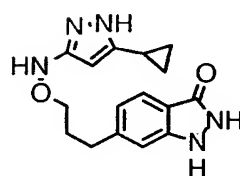
IV-111



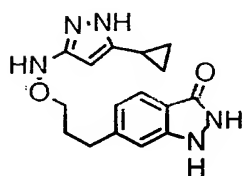
IV-112



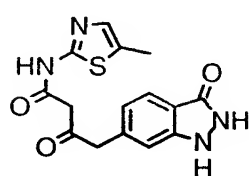
IV-113



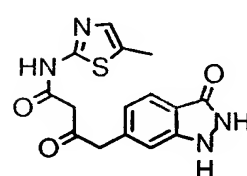
IV-114



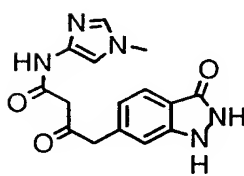
IV-115



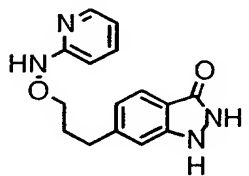
IV-116



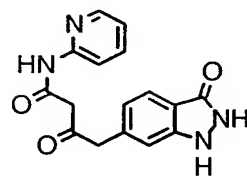
IV-117



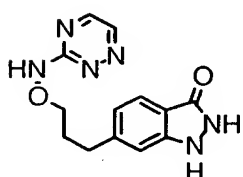
IV-118



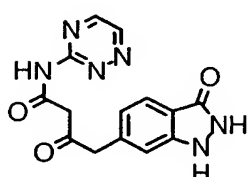
IV-119



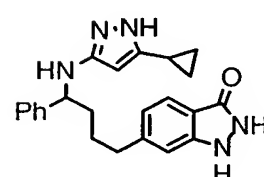
IV-120



IV-121

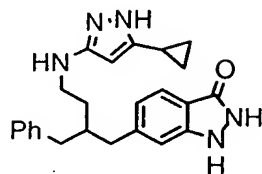


IV-122

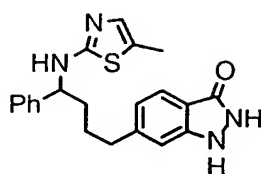


IV-123

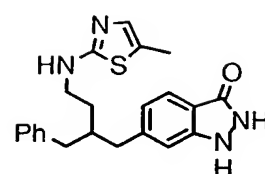
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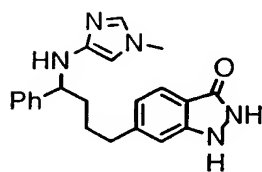
IV-124



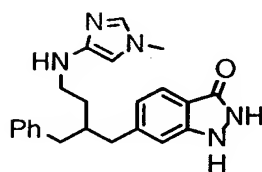
IV-125



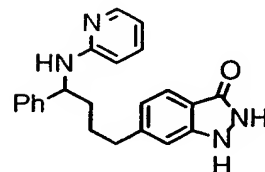
IV-126



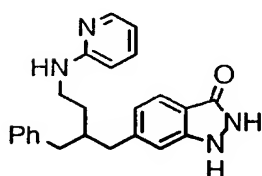
IV-127



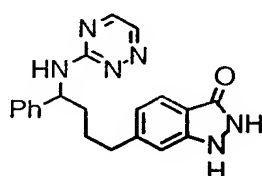
IV-128



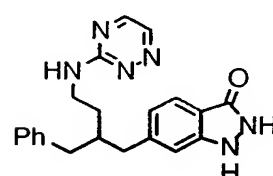
IV-129



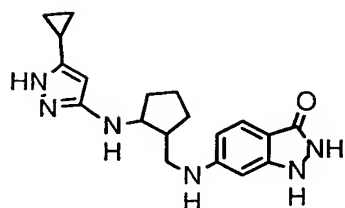
IV-130



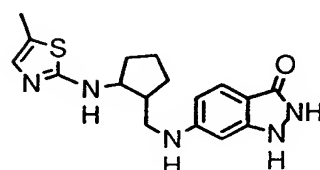
IV-131



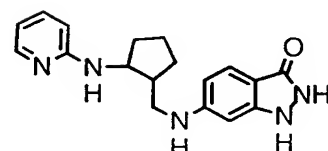
IV-132



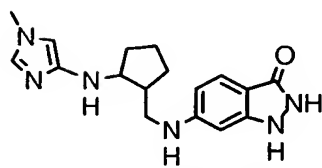
IV-133



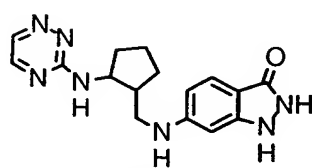
IV-134



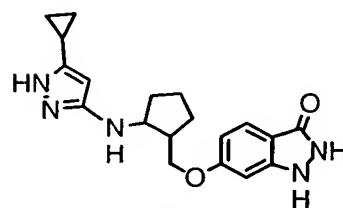
IV-135



IV-136

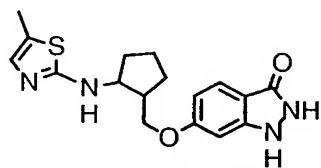


IV-137

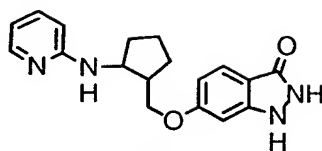


IV-138

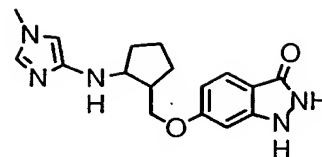
Applicants: Alex Aronov et al.  
Application No.: 10/694,534



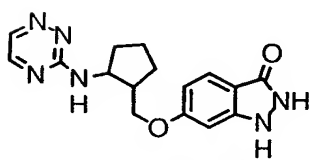
**IV-139**



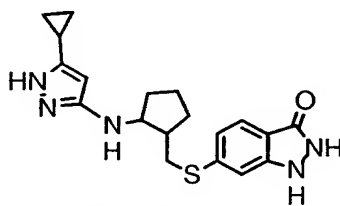
**IV-140**



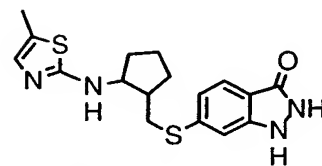
**IV-141**



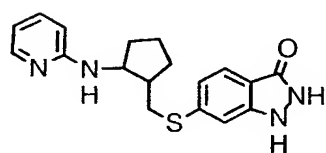
**IV-142**



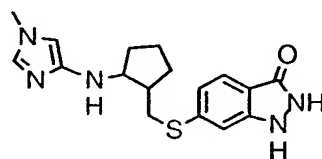
**IV-143**



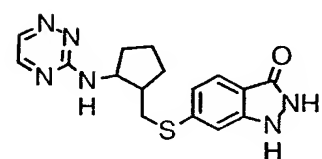
**IV-144**



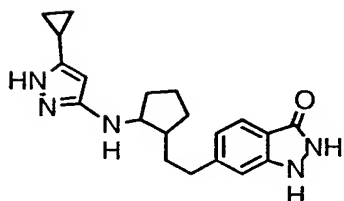
**IV-145**



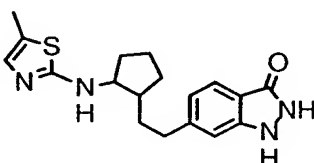
**IV-146**



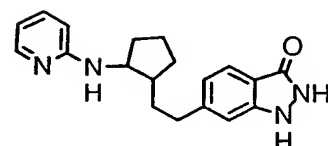
**IV-147**



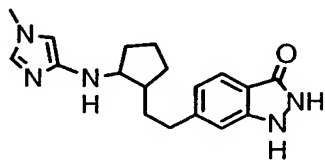
**IV-148**



**IV-149**

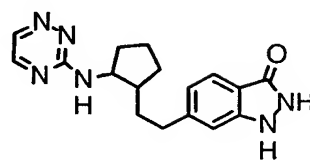


**IV-150**



**IV-151**

or



**IV-152.**